NIT No.: TPNODL/OT/2021-22/161 Dtd.28.01.2022

Open Tender Notification

For

RATE CONTRACT FOR SUPPLY TROLLEY MOUNTED MOBILE DISTRIBUTION TRANSFORMER OF 400KVA RATING WITH 1NOS. OF 800A LT ACB FOR TPNODL

Tender Enquiry No.: TPNODL/OT/2021-22/161 Dt. 28.01.2022

Due Date for Tender Fee: 05.02.2022 [15:00 Hrs.]

Due Date for Bid Submission: 14.02.2022 [15:00 Hrs.]

TP NORTHERN ODISHA DISTRIBUTION LIMITED
(A TATA Power and Odisha Government Joint Venture)
Contracts & Material Management Department,
Corporate Office, Januganj, Balasore-756019

Procedure to Participate in Tender

Tender Enquiry No- TPNODL/OT/2021-22/161

Tender Enquiry No.	Work Description	EMD (Rs.)*	Tender Fee (Rs.)**	Last Date and Time for payment of Tender Fee
TPNODL/OT/2021-22/161	SUPPLY TROLLEY MOUNTED MOBILE DISTRIBUTION TRANSFORMER OF 400KVA RATING WITH 1NOS. OF 800A LT ACB	2,00,000.00/-	5000	05.02.2022 , 15:00 Hrs

* EMD is exempted for MSMEs registered in the State of Odisha.

** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.

For details of MSME norms, pls refer "Annexure VIIA"

Please note that corresponding details mentioned in this document will supersede any other details mentioned anywhere else in the Tender Document.

Procedure to Participate in Tender.

Following steps to be done before “Last date and time for Payment of Tender Fee” as mentioned above:

1. Eligible and Interested Bidders to submit duly signed and stamped letter on Bidder's letter head indicating
    a. Tender Enquiry number
    b. Name of authorized person
    c. Contact number of authorized person
    d. E-mail id of authorized person
    e. Name of Firm
    f. Address of Firm
    g. GST Registration No
    h. Details of submission of Tender Fee
    i. MSME Certificate, wherever applicable

j. Details of Bank Account for refund of EMD:-

- Beneficiary Name –
- Account No –
- IFSC Code –
- Bank Name –
- Branch Name –
- Bank Address with Area Pin code:-

k. Postal Address for refund of EMD

2. Non-Refundable Tender Fee, as indicated in table above, to be submitted in the form of Direct Deposit in the following bank account and submit the receipt along with a covering letter clearly indicating the Tender Reference/ Enquiry Number –

Beneficiary Name – TP Northern Odisha Distribution Limited
Bank Name – Union Bank of India
Branch Name – Balasore Branch
Account No – 500601010280332
IFSC Code – UBIN0550060

GST- 21AAICT5123C1ZX

E-mail with necessary attachment to be sent to alok.kumar@tpnodl.com with copy to vipin.Chauhan@tpnodl.com before last date and time for payment of Tender Fee.

Interested bidders to submit Tender Fee and Authorization Letter before Last date and time as indicated above, after which link from TPNODL E-Tender system (Ariba) will be shared for further communication and bid submission.

Please note all future correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc will happen only through TPNODL E-Tender system (Ariba). User manual to guide the bidders to submit the bid through E-Tender system (Ariba) is also enclosed.

No e-mail or verbal correspondence will be responded. All communication will be done strictly with the bidders who have done the above step to participate in the Tender.

Also it may be strictly noted that once date of “Last date and time for Payment of Tender Participation Fee” is lapsed no Bidder will be sent link from TPNODL E-Tender System (Ariba). Without this link vendor will not be able to participate in the tender. Any last moment request to participate in tender will not be entertained.

Any payment of Tender Fee / EMD by Bidder who have not done the prerequisite will not be refunded.

Also all future corrigendum to the said tender will be informed on Tender section on website https://www.tpnodl.com

NIT No.: TPNODL/OT/2021-22/161 Dtd.28.01.2022

OPEN TENDER NOTIFICATION

FOR

RATE CONTRACT FOR SUPPLY TROLLEY MOUNTED MOBILE DISTRIBUTION TRANSFORMER OF 400KVA RATING WITH 1NOS. OF 800A LT ACB FOR TPNODL

FOR ONE YEAR

Tender Enquiry No.: TPNODL/OT/2021-22/161 Dtd.28.01.2022

Due Date for Bid Submission: 14.02.2022 [15.00 Hrs.]

TP NORTHERN ODISHA DISTRIBUTION LIMITED

(A Tata Power and Odisha Government Joint Venture)

Contracts & Material Management Department

Corporate office: Januganj, Balasore, Odisha-756019

CONTENTS OF THE ENQUIRY

1.0 Event Information

1.1 Scope of work

Open Tenders are invited in through e-tender bidding process from interested Bidders for entering into a **Rate Contracts valid for a period of 1 Year** as defined below:

Sr. No.	Item Description	Qty. in Nos.	EMD Amount* (Rs.)	Tender Fee** (Rs.)
1	Supply Trolley Mounted Mobile Distribution Transformer Of 400kva Rating With 1nos. Of 800A Lt ACB	16	**2,00,000.00**	**5,000**

* EMD is exempted for MSMEs registered in the State of Odisha.

** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.

1.2 Availability of Tender Documents

Please refer "Procedure to participate in the e-tender".

1.3 Calendar of Events

(a)	Last Date of receipt of Tender Fee	05.02.2022 ; 15:00 Hrs
(b)	Date & Time of Pre-Bid Meeting (If any)	Not Applicable due to COVID-19, Queries to be answered through e-mail/TPNODL Tender website.
(c)	Last Date of receipt of pre-bid queries, if any	07.02.2022up to 11:00 Hrs
(d)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	14.02.2022 up to 18:00 Hrs
(e)	Last date and time of receipt of Bids	14.02.2022 up to 15:00 Hrs
(f)	Date & Time of opening technical bids & EMD	15.02.2022 up to 16:00 Hrs
(g)	Date & Time of opening of Price of qualified bids	Will be notified to the successful bidders through our website/e-mail.

Note:- In the event of last date specified for submission of bids and the date of opening of bids is declared as a closed holiday for TPNODL, the last date of submission of bids and date of opening of bids will be the following working day at appointed times.

1.4 Mandatory documents required along with the Bid

1.4.1 EMD of requisite value and validity
1.4.2 Tender Fee in case the tender is downloaded from website
1.4.3 Requisite Documents for compliance to Qualification Criteria mentioned in Clause 1.7.
1.4.4 Drawing, Type Test details along with a sample of each item as specified at Annexure I (as applicable)
1.4.5 Duly signed and stamped 'Schedule of Deviations' as per Annexure III on bidder's letter head.
1.4.6 Duly signed and stamped 'Schedule of Commercial Specifications' as per Annexure IV on bidder's letter head.

1.4.7 Proper authorization letter/ Power of Attorney to sign the tender on the behalf of bidder.

1.4.8 Copy of PAN & GST (In case any of these documents is not available with the bidder, same to be explicitly mentioned in the 'Schedule of Deviations')

1.4.9 Sample Submission/Demonstration: TPNODL Reserves the right to seek samples and/or demonstration of offered items during Technical Evaluation. Samples/demonstration will be sought by Technical team doing Technical Evaluation. The same may have to submitted/arranged on urgent basis at Central Store, TPNODL, Sovarampur, Balasore, Odisha-756001. Bidder not able to submit sample/perform demonstration in time, may get Technically rejected.

Please note that in absence of any of the above documents, the bid submitted by a bidder shall be liable for rejection.

1.5 Deviation from Tender

Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the 'Annexure III - Schedule of Deviations' and same shall be submitted as a part of the Technical Bid.

1.6 Right of Acceptance/ Rejection

Bids are liable for rejection in absence of following documents:-

1.6.1 EMD of requisite value and validity
1.6.2 Tender fee of requisite value
1.6.3 Price Bid as per the Price Schedule mentioned in Annexure-I
1.6.4 Necessary documents against compliance to Qualification Requirements mentioned at Clause 1.7 of this Tender Document.
1.6.5 Filled in Schedule of Deviations as per Annexure III
1.6.6 Filled in Schedule of Commercial Specifications as per Annexure IV
1.6.7 Receipt of Bid within the due date and time

TPNODL reserves the right to accept/reject any or all the bids without assigning any reason thereof.

1.7 Qualification Criteria

1.7.1 The Bidder/OEM should have average Annual Turnover of Rs. 2.00 Cr. In last 3 financial years. Copy of audited P&L account to be submitted in this regard. UDIN is must for 2019-20 statements.
1.7.2 The bidder should have own manufacturing facility to manufacture the Distribution transformer of same or higher rating. Self-certification / Undertaking has to be submitted for the same along with the bid.
1.7.3 The bidder should submit the Performance Certificates for 2 years satisfactory performance from 2 reputed companies for Transformer of similar or higher rating. The work against these issued certificates should be completed in last seven years from the date of bid submission Copy of performance certificates to be submitted in this regard.
1.7.4 The bidder should have supplied the DTR of similar or higher rating during immediate last 5 financial years. Copy of work order / completion certificate to be submitted in this regard.
1.7.5 The bidder should have In-house testing facilities for acceptance test as per technical specification. Self-certification/Undertaking along with list of technical equipment has to be submitted for the same along with the bid.

1.7.6 The subsidiaries of global /Indian companies are also eligible to bid if the qualification criterions stated above are met independently or in combination with parent/sister / Group Company. However, the company should have establishment of permanent nature in India.
1.7.7 Guaranty period of 48 months from the date of commissioning or 60 months from the date of last supplies and as per respective technical specification.
1.7.8 PBG applicable as per TPNODL supply GCC.
1.7.9 MDCC:- Applicable as per TPNODL Supply GCC.

Guide Lines for MSMEs Registered in the state of Odisha

1) Tender Fees:

To participate in the tender, MSMEs registered in the State of Odisha shall pay Rs.1,000/- including GST towards cost of tender paper.

2) Earnest Money Deposit (EMD):

EMD shall be exempted for MSME registered in the State of Odisha. However, Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract.

3) Qualification Requirement for Open Tenders:

Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria.
For Technical Qualification, instead of relying on the volumes / value of earlier Supplies / Projects, assessment of the Bidder shall be done on the basis of feedback from Customers. Past performance experience at Tata Power and its Group Companies shall supersede feedback from other Customers.

4) Reservation for MSME:

It shall be mandatory, wherever applicable, to procure at least 20% of the total volume of the procurement from MSME registered in the State of Odisha, subject to matching L1 discovered prices and meeting technical specifications including quality requirements.

5) Performance Bank Guarantees:

Performance Bank Guarantee for MSME registered in the State of Odisha shall be 25% of the value normally prescribed.

1.8 Marketing Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the General Condition of Contracts. Bidders must agree to these rules prior to participating. In addition to other remedies available, TPNODL reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the General Condition of Contracts. A bidder who violates the market place rules or engages in behavior that disrupts the fair execution of the marketplace, may result in restriction of a bidder from further participation in the marketplace for a length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace
- Breach of terms as published in TENDER/NIT

1.9 Supplier Confidentiality

All information contained in this tender is confidential and shall not be disclosed, published or advertised in any manner without written authorization from TPNODL. This includes all bidding information submitted to TPNODL. All tender documents remain the property of TPNODL and all suppliers are required to return these documents to TPNODL upon request. Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

2.0 Evaluation Criteria

- The bids will be evaluated technically on the compliance to tender terms and conditions.
- The bids will be evaluated commercially on the overall all-inclusive lowest cost for the complete tender BOQ as calculated in Schedule of Items *[Annexure I].* TPNODL reserves the right to split the order line item wise and / or quantity wise among more than one Bidder. Hence all bidders are advised to quote their most competitive rates against each line item.
- Bidder has to mandatorily quote of each line item as per schedule of item [Annexure-I]. Failing to do so TPNODL may reject the bid.

NOTE: In case of a new bidder not registered, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However TPNODL reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of TPNODL shall be final and binding on the bidder in this regard.

2.1 Price Variation Clause: The year wise prices variation shall be applicable.

2.1.1 Price variation shall be applicable as per PV formulae as below:

P =P0/100 * (10 + 33*(C/C0) + 24*(ES/ES0) + 9*(IS/IS0) + 4*(IM/IM0) + 5*(TO/TO0) + 15*(W/W0))

P = Price payable as adjusted in accordance with above formula

P0= Price as per RC/RO.

C0= Average LME settlement price of copper wire bars (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the due date of tender.

ES0= C & F Price of CRGO Electrical steel sheets (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the due date of tender.

IS0= Price of HR coil of 3.15 mm thickness as per IEEMA circular. The price is as applicable on the 1st working day of the month, one months prior to the due date of tender.

IM0 =Price of insulating materials (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the due date of tender.

TO0 =Price of transformer oil (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the due date of tender.

W0 =All India average consumer price index number for Industrial workers as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001=100) as per IEEMA circular. This

index number is as applicable on the 1st working day of the month, three months prior to the due date of tender.

C= Average LME settlement price of copper wire bars (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the month of issue of MDCC or contractual delivery date whichever is earlier.

ES= C & F Price of CRGO Electrical steel sheets (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the month of issue of MDCC or contractual delivery date whichever is earlier.

IS= Price of HR coil of 3.15 mm thickness (as per IEEMA Circular). The price is as applicable on the 1st working day of the month, one month prior to the month of issue of MDCC or contractual delivery date whichever is earlier.

IM =Price of insulating materials (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the month of issue of MDCC or contractual delivery date whichever is earlier.

TO =Price of transformer oil (as per IEEMA circular). This price is as applicable on the 1st working day of the month, one month prior to the month of issue of MDCC or contractual delivery date whichever is earlier.

W =All India average consumer price index number for Industrial workers as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001=100) as per IEEMA circular. This price is as applicable on the 1st working day of the month, three months prior to the month of issue of MDCC or contractual delivery date, whichever is earlier.

Note : If due date of bid submission is extended due to any reason, the base date will remain unchanged for the calculation of PV clause.

3.0 Submission of Bid Documents

3.1 Bid Submission

Bidders are requested to submit their offer in line with this Tender document. TPNODL shall respond to the clarification raised by various bidders and the replies will be sent to all participating bidders through e-mail.

Bids shall be submitted in 3 (Three) parts:

FIRST PART: "EMD" of Rs. 2, 00,000/- (Two Lakh only) shall be submitted. The EMD shall be valid for 210 days from the due date of bid submission in the form of BG / Bankers Pay Order favouring 'TP NORTHERN ODISHA DISTRIBUTION LIMITED", payable at Balasore only. The EMD has to be strictly in the format as mentioned in General Condition of Contract, failing which it shall not be accepted and the bid as submitted shall be liable for rejection. A separate non-refundable tender fee of stipulated amount also needs to be transferred online through NEFT/ RTGS in case the tender document is downloaded from our website.

TPNODL Bank Details for transferring Tender Fee and EMD is as below:

Beneficiary Name – TP Northern Odisha Distribution Limited
Bank Name – Union Bank of India
Branch Name – Balasore Branch
Account No – 500601010280332
IFSC Code – UBIN0550060

SECOND PART: "TECHNICAL BID" shall contain the following documents:

a) Documentary evidence in support of qualifying criteria
b) Technical literature/GTP/Type test report etc. *(if applicable)*
c) Qualified manpower (if available)
d) Testing facilities *(if applicable)*
e) No Deviation Certificate as per the Annexure III – Schedule of Deviations
f) Acceptance to Commercial Terms and Conditions viz. Delivery schedule/period, payment terms etc. as per the Annexure IV – Schedule of Commercial Specifications.
g) Quality Assurance Plan/Inspection Test Plan for supply items *(if applicable)*

The technical bid shall be properly indexed and is to be submitted through TPNODL E-tender platform (Ariba) only. Hard Copy of Technical Bids need not be submitted.

THIRD PART: "PRICE BID" shall contain only the price details and strictly in format as mentioned in Annexure I with explicit break up of basic prices, Taxes & duties, Freight etc. In case any discrepancy is observed between the item description stated in Schedule of Items mentioned in the tender and the price bid submitted by the bidder, the item description as mentioned in the tender document (to the extent modified through Corrigendum issued if any) shall prevail.

FOR BIDS INVITED THROUGH E-PROCUREMENT PORTAL:

The interested bidders are requested to obtain user name and password for purpose of bid submission through e-procurement portal of TPNODL.

Bids have to be mandatorily submitted only through e-procurement portal of TPNODL. Bids submitted through any other form/ route shall not be admissible

The EMD in the form of BG shall be submitted in original hard copy and then placed in sealed envelope which shall be clearly marked as below:

EMD
"RATE CONTRACT FOR SUPPLY OF COUPPER WIRE FOR TRANSFORMER REPAIRING MATERIALS (Group-G) at TPNODL Area"

Please mention our Enquiry Number:- TPNODL/OT/2021-22/161 Dtd.28.01.2022 on the Tender and drop the same at **TP NORTHERN ODISHA DISTRIBUTION LIMITED, (A Tata Power and Odisha Government Joint Venture), HOD (Contracts), Corporate office: Januganj, Balasore, Odisha-756019.**

The envelope shall be addressed to:

HOD (Contracts)
TP NORTHERN ODISHA DISTRIBUTION LIMITED
(A Tata Power and Odisha Government Joint Venture)
Corporate office: Januganj, Balasore, Odisha-756019

The envelope shall also bear the Name and Address of the Bidder along with our Tender No. and subject.

SIGNING OF BID DOCUMENTS:

The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

The Bid being submitted must be signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.

The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

3.2 Contact Information

All the bidders are requested to send their pre-bid queries (if any) against this tender through e-mail within the stipulated timelines. The consolidated reply to all the queries received shall be posted on TPNODL website by the stipulated timelines as detailed in calendar of events.

Communication Details:

Package Owner: Contracts & Material Management

Name: Mr. Alok Kumar

Contact No: 8458806822

E-Mail ID: alok.kumar@tpnodl.com

HOD: Contracts

Name: Mr. Vipin Chauhan
Contact No: 9717393121

E-Mail ID: vipin.chauhan@tpnodl.com

3.3 Bid Prices

Bidders shall quote for the entire Scope of Supply / work with a break up of prices for individual items and Taxes & duties. The bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total price with taxes, duties & freight up to destination

at various sites of TPNODL. The all-inclusive prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during the execution of the supply work, breakup of price constituents.

The quantity break up shown else-where other than Price Schedule is tentative. The bidder shall ascertain himself regarding material required for completeness of the entire work. Any items not indicated in the price schedule but which are required to complete the job as per the Technical Specifications / Scope of Work mentioned in the tender, shall be deemed to be included in prices quoted.

3.4 Bid Currencies

Prices shall be quoted in Indian Rupees Only.

3.5 Period of Validity of Bids

Bids shall remain valid for 180 days from the due date of submission of the bid.

Not with standing clause above, the TPNODL may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and responses thereto shall be made in writing.

RC Validity:- The validity of this rate contract shall be one year from the date of issuance.

3.6 Alternative Bids

Bidders shall submit Bids, which comply with the Bidding documents. Alternative bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the bidding documents.

3.7 Modifications and Withdrawal of Bids

The bidder is not allowed to modify or withdraw its bid after the Bid's submission. The EMD as submitted along with the bid shall be liable for forfeiture in such event.

3.8 Earnest Money Deposit (EMD)

The bidder shall furnish, as part of its bid, an EMD amounting as specified in the tender. The EMD is required to protect the TPNODL against the risk of bidder's conduct which would warrant forfeiture. The EMD shall be denominate in any of the following form:

- Banker's Cheque/ Demand Draft/ Pay order drawn in favour of 'TP NORTHERN ODISHA DISTRIBUTION LIMITED", payable at Balasore only
- Online transfer of requisite amount through NEFT/ RTGS.
- Bank Guarantee valid for 210 days after due date of submission.

The EMD shall be forfeited in case of:

a) The bidder withdraws its bid during the period of specified bid validity.

Or

b) The case of a successful bidder, if the Bidder does not

i) accept the purchase order, or

ii) furnish the required performance security BG

3.9 Type Tests (if applicable)

The type tests specified in TPNODL specifications should have been carried out within five years prior to the date of opening of technical bids and test reports are to be submitted along with the

bids. If type tests carried out are not within the five years prior to the date of bidding, the bidder will arrange to carry out type tests specified, at his cost. The decision to accept/ reject such bids rests with TPNODL.

4.0 Bid Opening & Evaluation process

4.1 Process to be confidential

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the TPNODL's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

4.2 Technical Bid Opening

Bids shall be opened as per the schedule mentioned in Calendar of Events. In case of limited tenders, the bids shall be opened internally by TPNODL. Owing to COVID Scenario, in case of Open Tenders also, the bids shall be opened internally by TPNODL. Technical bid must not contain any cost information whatsoever.

First the "EMD" will be checked. Bids without EMD/ cost of tender (if applicable) of required Amount / validity in prescribed format, shall be rejected.

Next, the technical bid of the bidders who have furnished the requisite EMD will be opened, one by one. The salient particulars of the techno commercial bid will be read out at the sole discretion of TPNODL

4.3 Preliminary Examination of Bids/ Responsiveness

TPNODL will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. TPNODL may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

Prior to the detailed evaluation, TPNODL will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

Bid determined as not substantially responsive will be rejected by the TPNODL and/or the TPNODL and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

4.4 Techno Commercial Clarifications

Bidders need to ensure that the bids submitted by them are complete in all respects. To assist in the examination, evaluation and comparison of Bids, TPNODL may, at its discretion, ask the Bidder for a clarification on its Bid for any deviations with respect to the TPNODL specifications and attempt will be made to bring all bids on a common footing. All responses to requests for

clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered, or permitted owing to any clarifications sought by TPNODL. After all techno commercial issues are clarified, the date of price bid opening will be intimated to the technically accepted bidders and same shall also be notified at TPNODL website.

4.5 Price Bid Opening

Price bids will be opened at the stipulated date and time. The EMD of the bidder withdrawing or substantially altering his offer at any stage after the technical bid opening will be forfeited at the sole discretion of TPNODL without any further correspondence in this regard.

4.7 Reverse Auctions

TPNODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products/ services being asked for in the tender and reserves the rights to conduct the manual negotiation with the BA who is declared L1 after Reverse Auction. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached as Annexure VI of this document. The bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form attached as Annexure VI as a token of acceptance for the same.

5.0 Award Decision

TPNODL will award the contract to the successful bidder whose bid has been determined to be the lowest-evaluated responsive bid as per the Evaluation Criterion mentioned at Clause 2.0. The Cost for the said calculation shall be taken as the all-inclusive cost quoted by bidder in Annexure I (Schedule of Items) subject to any corrections required in line with Clause 4.3 above. The decision to place rate contract / purchase order / LOI solely depends on TPNODL on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that TPNODL may deem relevant.

TPNODL reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without assigning any reason thereof.

In case any supplier's services or quality of material is / are found unsatisfactory during the delivery process, the award will be cancelled and TPNODL reserves the right to award other suppliers who are found fit.

6.0 Order of Preference/Contradiction:

In case of contradiction in any part of various documents in tender, following shall prevail in order of preference:

1. Schedule of Items (Annexure I)
2. Post Award Contract Administration (Clause 7.0)
3. Submission of Bid Documents (Clause 3.0)
4. Scope of Work and SLA (if any)
5. Technical Specifications (Annexure II)
6. Inspection Test Plan (if any)
7. Acceptance Form for Participation in Reverse Auction (Annexure VI)
8. General Conditions of Contract (Annexure VII)

7.0 Post Award Contract Administration

7.1 Special Conditions of Contract

- Rate contract shall be valid for a period of 1 years from the placement of Contract. Release Order (RO) shall be placed as per the requirement of TPNODL. Rate shall remain variable as per Clause No. 2.1, till the validity of Rate Contract.
- Post award of rate contract, Business Associate (BA) shall submit applicable Performance Bank Guarantee as per GCC within 15 days. PBG applicable shall be 5% of Rate contract Value. PBG submitted, shall be released after completion of applicable guarantee period plus one month.
- Any change in statutory taxes, duties and levies during the contract period shall be borne by TPNODL. However, in case of delay in work execution owing to reasons not attributable to TPNODL, any increase in total liability shall be passed on the Bidder, whereas any benefits arising owing to such statutory variation in taxes and duties shall be passed on TPNODL.
- BA will ensure & co-ordinate with TPNODL team for approval of drawing / GTP within 15 days from issue of RC.
- Delivery period shall be 90 days + 15 days (considering the approval of drawing / GTP) from date of receipt of release order for the first lot however for remaining lots the delivery period will be 90 days from RO date.
- Delivery location shall be central store TPNODL Balasore, Odisha.
- Quotation in all BOM items is mandatory, and bid shall be rejected if any line of found blank in price bid.
- Guarantee applicable shall be as per technical specifications
- TPNODL shall short close the issued Release Order / Rate contract, in case of any quality issues
- All other terms and conditions of TPNODL General Conditions of Contract-Supply shall be applicable.
- TPNODL reserve the right to select at Random sample from any of the lots offered for final inspection and send for any or all of the type test specified in technical specifications to CPRI or ERDA. Failure in the type tests shall make the make the whole lot liable to be rejected and fresh lots are to be offered for inspection. Any delay in delivery and additional cost for further type testing shall be accountable to bidder.
- Price Variation clause shall be applicable.

7.2 Drawing Submission & Approval

The relevant drawings and GTPs need to be submitted as per special condition of contract mentioned in point no. 7.1

7.3 Delivery Terms

The delivery of material shall be made as per special condition of contract mentioned in point 7.1.

7.4 Warranty Period

Guarantee/Warranty Period of the supplied material shall be as per technical specification.

7.5 Payment Terms

On delivery of the materials in good condition and certification of acceptance by certified official, Associate shall submit the Bills/ Invoices in original in the name of TP NORTHERN ODISHA DISTRIBUTION LIMITED to AGM (Elect.) / Executive Engineer (Elect.), ESD, TPNODL, Balasore. The payment shall be released within 45 days from the date of submission of certified bills/ invoices.

7.6 Climate Change

Significant quantities of waste are generated during the execution of project and an integrated approach for effective handling, storage, transportation and disposal of the same shall be adopted. This would ensure the minimization of environmental and social impact in order to combat the climate change.

7.7 Ethics

- TPNODL is an ethical organization and as a policy TPNODL lays emphasis on ethical practices across its entire domain. Bidder should ensure that they should abide by all the ethical norms and in no form either directly or indirectly be involved in unethical practice.
- TPNODL work practices are governed by the Tata Code of Conduct which emphasizes on the following:
- We shall select our suppliers and service providers fairly and transparently.
- We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
- Our suppliers and service providers shall represent our company only with duly authorized written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.
- We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company's gifts and hospitality policy.
- We respect our obligations on the use of third party intellectual property and data.

Bidder is advised to refer GCC attached at Annexure IX for more information.

Any ethical concerns with respect to this tender can be reported to the following e-mail ID: ceooffice@tpnodl.com

8.0 Specification and standards:

Attached with tender.

9.0 General Condition of Contract

Any condition not mentioned above shall be applicable as per GCC for Supply attached along with this tender.

10.0 Safety

Safety related requirements as mentioned in our safety Manual is put in the Company's website and same shall be strictly followed.

http://www.tpnodl.com

All Associates shall strictly abide by the guidelines provided in the safety manual at all relevant stages during the contract period.

ANNEXURE I
Schedule for Items

S. No.	Item Description	Qty.	Unit	HSN Code	Unit Ex-Work Price (Rs./ Unit)	GST (Rs/ Unit)	All Inclusive Unit Rate (Rs.)	Total All Inclusive Value (Rs.)
1	SUPPLY TROLLEY MOUNTED MOBILE DISTRIBUTION TRANSFORMER OF 400KVA RATING WITH 1NOS. OF 800A LT ACB	16	Nos.					
	Total All-inclusive Price for Complete BOQ (Rs.)							

Total Amount In word:-

Signature & Seal of the Bidder

NOTE:

- The quantity mentioned above is for evaluation purpose only and may vary during the execution. Release Orders against this Rate Contract shall be issued by TPNODL as per actual requirement.
- The overall period of the rate contract shall be for a period of **12 Months** and price shall be firm till the validity of contract. Extendable to **6 Months** (Optional).
- Material shall be delivered within 90 Days from date of issuance of RO. However, BA shall submit the drawing/ GTP within 15 days from date of issuance of order.
- Delivery Location shall be Central Store TPNODL Balasore, Odisha.
- The unit price with GST in column no. 8, is landed price (unit all inclusive) FOR TPNODL Odisha Locations. Exact delivery location shall be specified in the Release Order.
- The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
- The bidder must fill each and every column of the above format. ***Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid.***
- No cutting/ overwriting in the prices is permissible.
- In case of a new bidder not registered with TPNODL, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However TPNODL reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of TPNODL shall be final and binding on the bidder in this regard.

Technical Specifications (Annexure II)

A. Technical Specification for 400 KVA Transformer

CONTENTS

1	**SCOPE**	1. This Specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing forwarding, supply and unloading at site/store and performance of Oil immersed, non-sealed, naturally cooled, three Phase 11/0.433 kV, 50Hz, outdoor conventional type, copper winding, Distribution Transformer of 160kVA to 2MVA ratings. 2. The transformer shall be complete with all components and accessories, which are necessary or usual for their efficient performance and trouble free operation under the various operating and atmospheric conditions specified in clause no. 3 3. Such of the parts that may have not been specifically included, but otherwise form part of the transformer as per standard trade and/or professional practice and/or are necessary for proper operation of transformer, will be deemed to be also included in this specification. The successful bidder shall not be eligible for any extra charges for such accessories etc. notwithstanding the fact that at the time of an initial offer bidder had segregated such items and quoted for them separately.
2	**APPLICABLE STANDARDS**	The equipment (and the materials used) covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian standards & other relevant standards for components, BEE & CEA guidelines with latest amendment from time to time, thereof, some of which are listed below:

Indian Standards (IS)	**Title**
IS 1180 : 2014	Outdoor Type Oil Immersed Distribution Transformers Upto and Including 2500 KVA, 33 kV-Specification
IS 2026 : 2011 (all parts)	Specification for Power Transformers
IS 104 : 1979	Specification for ready mixed paint, brushing, zinc chrome, priming
IS 335 : 2018	Specification for new insulating oil.
IS 649: 1997	Testing for steel sheets and strips and magnetic circuits.
IS 5 : 2007	Specification for Colors for ready mixed paints and enamels
IS 1576: 1992	Solid Pressboard for Electrical Purposes -Specification
IS 2099:1986	Specification for bushings for alternating voltages above 1000 volts
IS 2362:1993	Determination of water content in oil by Karl in oil Fischer Method – Test Method.
IS 3024 : 2006	Grain oriented electrical steel sheets and strips
IS3347 (Part I & Part-3): 1979	Dimensions for Porcelain Transformer Bushings for Use in Normal and Lightly Polluted Atmospheres - Part 1 : Up to and including 1 kV
IS 4253: Part II: 1980	Specification for cork composition sheets- Part II : Cork and Rubber
IS 4257(Part I): 1981	Dimensions for Clamping Arrangements for Porcelain transformer Bushings - Part I: For 12 kV to 36 kV Bushings
IS 5082:1998	Wrought Aluminum and Aluminum Alloy bars, Rods , Tubes, Sections, Plates and Sheets for Electrical Applications
IS 5561 : 1970	Specification for Electric Power Connectors

		IS 6103 : 1971	Specification for Testing of specific resistance of electrical insulating liquids
		IS 2026 part 7	Guide for loading of Oil-immersed transformer
		IS 6792:1992	Method for Determination of Electric Strength of Insulating Oil
		IS 7404 (Part-1): 1991	Paper Covered conductors: Round Conductors
		IS 7421:1988	Specification for porcelain bushings for alternating voltages up to and including 1000kv
		IS 8603 (Part-1) : 1977	Dimensions for Porcelain Transformer Bushings for Use in Heavily Polluted Atmospheres - Part I:12 kV and 17.5 kV Bushings
		IS 9335:1979	Specification for Cellulosic Papers for Electrical Purposes
		IS 10028: 1981	Code of Practice for Selection, Installation and Maintenance of Transformers
		IS 11149:1984	Specification for rubber gaskets
		IS 12444: 1988	Specification for Continuously Cast and Rolled Electrolytic Copper Wire Rods for Electrical Conductors.
		IS/IEC 60947 (PART 1& PART 2)	Specification for LV Switchgear & Control gear
		IS 6160	Rectangular electrical conductors for electrical machines
		IS 13964: 1994	Methods of measurement of transformer and reactor sound levels
		IS 3401 : 1992	Specification of silica Gel
		IS 1897: 2008	Copper strip for electrical purposes
		IS 60529	Degree of protection provided by enclosure
		IS 816	Welding of Mild Steel
		CEA -2008	Guidelines for specifications of energy efficient outdoor type single and three phase distribution transformers
		IS 6262 : 1971	Method of test for power factor and dielectric constant of electrical insulating liquids
		IS 16659: 2017	Fluids For Electro technical Applications - Unused Natural Esters For Transformers And Similar Electrical Equipment
		IS 16081: 2013	Insulating liquids — Specifications for. Unused synthetic organic esters for Electrical purposes
		IEC 60156: 1995	Method of determination of electric strength of insulating oils.
		IEC 60296: 2003	Specification for unused mineral insulating oils for transformers and switchgear.
		IEC 60529: 2001	Degrees of protection provided by enclosures (IP Code)
		IS 1852	: Rolling and cutting tolerances for hot rolled steel products

4.0 GENERAL TECHNICAL REQUIREMENTS

S. No.	Description	Requirements										
1.	Continuous Rated Capacity (kVA)	**160 kVA**	**250 kVA**	**315 kVA**	**400 kVA**	**500 kVA**	**630 kVA**	**800 kVA**	**1 MVA**	**1.25 MVA**	**1.6 MVA**	**2 MVA**

3 CLIMATIC CONDITIONS OF THE INSTALLATION

The material shall be suitable for following climatic conditions,

1. CLIMATIC CONDITIONS:

a)	Maximum Ambient Temperature	50 ^{o}C
b)	Maximum Daily Average Ambient Temperature	40 ^{o}C
c)	Minimum Ambient Temperature	2 ^{o}C
d)	Maximum Humidity	99.7 %
e)	Minimum Humidity	15 %
f)	Average Annual Rainfall	1800 mm
g)	Average Wind Speed prevailing in the area	200 km/hr.
h)	Average Thunderstorms prevailing in the area	70 days per annum
i)	Average dust storms prevailing in the area	20 days per annum
j)	Average number of rainy days per annum	160
k)	Maximum Altitude above sea level	1200 m
l)	Seismic Level	0.24g to 0.48g

The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months. The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.3 g.

2.	Application	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
3.	System voltage (max.)	12 kV	12 kV	12 kV	12 kV	12 kV	12 kV	12	12	12	12	12
4.	Rated voltage HV	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv	11Kv
5.	Rated voltage LV (V)	433-250	433-250	433-250	433-250	433-250	433-250	433-250	433-250	433 - 250V	433 V-250V	433 V-250V
6.	Line current HV (A)	8.4 A	13.12 A	16.53 A	20.96 A	26.25 A	33.06 A	42A	52.48 A	65.6 A	83.98 A	104.97 A
7.	Line current LV (A)	213.34 A	333.34 A	420.02 A	533.36 A	666.68 A	840.02 A	1066 .7A	1333 .4 A	1666 .7 A	2133.5 A	2666.7
8.	Frequency (Hz)	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50Hz	50Hz	50Hz	50Hz
9.	No. of Phases	Three	Three	Three	Three	Three	Three	Three	Three	Three	Three	Three
10.	Connection HV	Delta	Delta	Delta	Delta	Delta	Delta	Delta	Delta	Delta	Delta	Delta
11.	Connection LV	Star (Neutral	Star (Neutral	Star (Neutral Broug	Star (Neutral Broug	Star (Neutral Broug	Star (Neutral Broug	Star (Neutral Broug	Star (Neutral	Star (Neutral Broug	Star (Neutral	Star (Neutral

		Brought out)	Broug ht out)	ht out)	ht out)	ht out)	ht out)	ht out)	Broug ht out)	ht out)	Brought out)	Brough t out)
12.	Vector group	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11
Sr. no.	**Description**	**Requirements**										
	Continuous Rated Capacity (kVA)	**160 kVA**	**250 kVA**	**315 kVA**	**400 kVA**	**500 kVA**	**630 kVA**	**800 kVA**	**1 MVA**	**1.25 MVA**	**1.6 MVA**	**2 MVA**
13.	Type of cooling	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN
14.	Tap changing arrangement (off load)	---NA--	+5.0% to –10% in steps of 2.5%		+5.0% to –10% in steps of 2.5%			+5.0% to -10% in steps of 2.5%		+5.0% to –10% in steps of 2.5%		
15.	No. of tap positions	---NA--	7	7	7			7	7			7
16.	Noise level at rated voltage and frequency	55 dB	55 dB	56 dB	56 dB	56 dB	57 dB	58 dB	58 dB	60 dB	60 dB	61 dB
17.	**Permissible temperature rise over ambient:**											
17.1	Of top oil	35 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC	40 ºC
17.2	Of winding	40 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC	45 ºC
18.	Max. Total Losses at 50% loading at 75°C (watts)	670	980	1025	1225	1510	1860	2287	2790	3300	4200	5050
19.	Max. Total Losses at 100% loading) at 75°C (Watts).	1950	2930	3100	3450	4300	5300	6402	7700	9200	11800	15000
20.	Short circuit impedance voltage at 75°C (±10% tolerance)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	5%	5%	5%	6.25%	6.25%
21	Insulation Class	A	A	A	A	A	A	A	A	A	A	A
22.	Normal Flux Density (at rated voltage and frequency)	1.6 T	1.6 T	1.6 T	1.6 T	1.6 T	1.6 T	1.6 T	1.6T	1.6T	1.6T	1.6T
23.	Maximum current density (A/mm²)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
24.	Impulse withstand voltage	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp	75 kVp

25.	Power frequency withstand voltage	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV	28 kV
Sr. no.	**Description**	**Requirements**										
	Continuous Rated Capacity (kVA)	**160 kVA**	**250 kVA**	**315 kVA**	**400 kVA**	**500 kVA**	**630 kVA**	**800 kVA**	**1 MVA**	**1.25 MVA**	**1.6 MVA**	**2 MVA**
26.	Max. flux density (Increase of +12.5 % combined voltage & frequency variation from rated voltage & frequency)	1.8 T (Max.)										
27.	Voltage fluctuations permissible	12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5 % to -12.5%	+12.5% to -12.5%	+12.5% to -12.5%
28.	**Metering CT for LV side**	NA	400/5	500/5	600/5	800/5	1000/5	1200/5	1500/5	2000/5 A	2500/5 A	3000/5 A
28.1	Accuracy Class for metering CT	NA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
28.2	Burden	NA	20 VA	20 VA	20 VA	20 VA	20 VA	20 VA	20 VA	20 VA	20 VA	20 VA
28.3	ISF (Instrument security factor)	NA	5	5	5	5	5	5	5	5	5	5
29.	Neutral terminal	Two separate brought out neutral from main neutral bus bar, One for taking out the neutral for 4 wire system and other additional neutral for solid earthing.										
30.	**Minimum clearances in air (mm) :**											
30.1	HV phase to phase/ phase to earth	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140	255 / 140
30.2	LV phase to phase/ phase to earth	75 / 40	75 / 40	75 / 40	75 / 40	75 / 40	75 / 40	75/40	75 / 40	75 / 40	75 / 40	75 / 40
31.	**Minimum clearances in Cable Box (mm) :**											
31.1	HV phase to phase/ phase to earth	130 / 90	130 / 90	130 / 90	130 / 90	130 / 90	130 / 90	130/ 90	130 / 90	130 / 90	130 / 90	130 / 90
31.2	LV phase to phase / phase to earth	25 / 20	25 / 20	25 / 20	25 / 20	25 / 20	25 / 20	25/20	25 / 20	25 / 20	25 / 20	25 / 20
32	**Wheels**	Only item codes in tender having mention of 'Plinth Mounted' those DT shall have rollers. When same is not mentioned in item code then the DT shall be without rollers.					The transformer shall be provided with four uni-directional rollers with locking arrangement suitable for rail gauges in both the axis for movement of transformer in either direction. Distance between wheels shall be center to center 820mm					

5	**GENERAL CONSTRUCTION**	1. The transformer shall be stacked core, copper coil, oil immersed, naturally cooled (ONAN), non-sealed type with plain rectangular tank. 2. The transformer shall be suitable for service with fluctuations in supply voltage up to +12.5% to -12.5%. 3. The transformer shall be designed suitable for service life of 25years. 4. The transformer and accessories shall be designed to facilitate trouble free operation, inspection, maintenance and repairs under the various operating and atmospheric conditions specified in clause no. 3. 5. The design shall incorporate every precaution and provision for the safety of the equipment as well as staff engaged in operation and maintenance of the equipment. 6. All outdoor apparatus of the transformer, including bushing insulators with their mountings, shall be designed so as to avoid any accumulation of water.
5.1	**CORE**	1. Transformer core shall be stack type, 2D, constructed from high grade cold rolled, non-ageing, grain oriented, silicon steel lamination which shall be properly annealed (under inert atmosphere, if required) to relieve stresses. 2. The core shall have low loss and good grain properties. 3. Core should be coated with hot oil proof, with insulation coating, an inorganic coating equivalent to C-5 type as ASTM A976 or IS 3024, like Carlite -3. 4. All core should be clamped together with frames to prevent vibration and noise. The core clamping shall be preferably without through bolts and if any bolt used same shall be effectively insulated. 5. The **core thickness should be 0.23mm or less** and **grade should be M3 or better**. 23HP85 as per IS 3024 or better with Minimum Polarization in Tesla at a Field Strength of 800 A/m 6. Only single grade and same thickness of core stampings shall be accepted and mixing of different grades shall not be allowed. 7. The complete design of the core must ensure maximum permanency of the core losses without continuous working of the transformers. 8. The value of the maximum flux density allowed in the design and grade of lamination used shall be clearly stated. The vendor shall submit the calculations in support of the same. 9. The handling of core lamination and stacking should be smooth and uniform. 10. The transformer shall be suitable for continuous service without damage under 'over fluxing' where the ratio of voltage over frequency exceeds the corresponding ratio at rated voltage and rated frequency up to 12.5% and the core shall not get saturated. The BH graph to be submitted by bidder for core material. 11. The No Load current shall not exceed 2% of the Full Load current for >200kVA (3% for 160kVA) and will be measured by energizing the transformer at rated voltage and frequency. Increase of 12.5% of rated voltage shall not increase the no-load current by 5% maximum of full load current for >200kVA rating (6% for 160kVA) 12. The bidder shall be required to submit the following documents in regard to procurement of core material during stage inspection:

- Invoice of supplier
- Mill's test certificate
- Packing list
- Bill of landing
- Bill of entry certificate by custom (if required)
- Description of material, electrical analysis, physical inspection certificate for surface defects, thickness and width of material.

13. The bidder shall offer the core for inspection and approval of TPNODL during manufacturing stage. Heavy penalty or black listing shall be imposed on the bidders using defective CRGO sheets i.e in case of nonconformance w.r.t TPNODL Specifications.
14. Transformer core assembly shall have enclosed type lifting lugs for lifting arrangement.
15. Bidder shall provide the below details in below table:

Sl. No.	Description	Unit	As furnished by bidder
1	Magnetizing (No Load) Current		
	90% Voltage	%	
	100% Voltage	%	
	112.5% Voltage	%	
2.	Core grade		
3.	Thickness of core Lamination	Mm	
4.	Core Dimension: Length X height X diameter	mm x mm x mm	
5.	Gross core area	Sq.cm	
6.	Net core area	Sq.cm	
7.	Flux density (calculated)	Tesla	
8.	Over fluxing without saturation (BH curve to be submitted)	Tesla	
9.	Mass of core	Kg	
10.	Loss per Kg of core at the above specified flux density	Watt	
11.	Core window height	Mm	
12.	Center to center distance of the core	Mm	
13	Mass of Core Lamination (min.)	Kg	
14	Make of Core offered		

5.2 WINDING CONNECTIONS

1. Primary and secondary windings shall be constructed from high-conductivity (copper conductors), Double Paper Covered (DPC) copper conductor with min. 30% overlap per layer of paper & TPC with 25% overlap per layer.
2. The conductor should be drawn uniformly without any deformation and any burr.
3. No metallic or non-metallic dust should be present in-between DPC conductor.
4. The current density for HV and LV winding should not be more than 2.5 Ampere per sq.mm.

5. The insulation between core and bolts, core and clamps shall withstand **2.5 kV for one minute.**
6. Proper bonding of inter layer insulation with the conductor shall be ensured.
7. All turns of windings shall be adequately supported (by which material) to prevent movement. The core/coil assembly shall be securely held in position to avoid any movement under short circuit conditions.
8. **The joints in the winding shall be avoided but if it is necessary then, they shall be properly brazed and the resistance of the joints shall be less than that of parent conductor. Crimping is not allowed at any joints.**
9. LV winding shall be such that neutral formation is at the top.
10. Bidder shall provide the below details in below table:

Sl. No.	Description	Unit	As furnished by bidder
1.	No. of LV coils		
2.	No. of HV coils		
3.	HV conductor grade		
4.	Dia of HV conductor (Bare)	Mm	
5.	Dia of HV conductor (DPC)	Mm	
6.	Conductivity of HV conductor	%	
7.	Purity of HV conductor	%	
8.	No. of HV Turns	Nos.	
9.	Current density of HV winding(calculated)		
10.	Wt. of the HV winding copper without insulation	Kg	
11.	LV conductor grade		
12.	Dimension of LV conductor (Bare)	mm x mm	
13.	Dimension of LV conductor (DPC)	mm x mm	
14.	Conductivity of LV conductor	%	
15.	Purity of LV conductor	%	
16.	No. of LV Turns	Nos.	
17.	Current density of LV winding(calculated)	A	
18.	No. of parallels of LV conductor	Nos.	
19.	Wt. of the LV winding copper without insulation	Kg	
20.	Resistance of windings at 20^0C		
	HV winding	Ohm	
	LV winding	Ohm	
21.	Height of LV winding	Mm	
22.	Height of HV winding	Mm	
23.	ID of HV winding	Mm	
24.	OD of HV winding	Mm	
25.	ID of LV winding	Mm	
26.	OD of LV winding	Mm	
27.	Thickness of the duct in LV winding	Mm	

		28.	Thickness of the duct in HV winding	Mm	
		29.	Thickness of the duct between HV & LV	Mm	
		30.	Make of the copper winding conductors		

5.3 INSULATING PAPER AND INSULATING PRESSBOARD

1. Inter layer insulation both for HV and LV windings shall be Epoxy diamond dotted Kraft paper and compressed pressboard of make (refer Clause no.5.32) subject to approval of TPNODL.
2. Primary and secondary windings shall be constructed from high-conductivity (copper conductors), Double Paper Covered (DPC) copper conductor with min. 30% overlap per layer of paper & TPC with 25% overlap per layer.
3. Kraft paper and Pressboard should be made of pure Cellulose from soft wood pulp manufactured from sulphate process. No additive, adhesive or coloring matter shall be present.
4. Kraft paper and Pressboard should be of class A (105°C) insulation material.
5. All spacers, axial wedges / runners used in windings shall be made of pre-compressed solid pressboard.
6. All axial wedges/runners shall be properly milled to dovetail shape so that they pass through the designed spacers freely.
7. Insulation shearing, milling and punching operations shall be carried out in such a way, that there should not be any burr, sharp edges and dimensional variations.
8. Kraft paper self-adhesive tape to be used for bonding of insulating paper layer, spanner and paperboards that are immersed in the oil filled transformer.
9. PI value shell be more than or equal to 1.3.
10. Below required values could be verified if required at any stage of the inspection and it should fulfill the requirement as per below table:

Characteristics	Kraft Paper	Pressboard (all Sizes)
1. Dimension	As specified by bidder with ±5% tolerance.	As specified by bidder with tolerance as per IS1576.
2. Apparent Density	>0.80 g/cm^3	as per IS 1576 w.r.t Thickness
3. pH of Aqueous extract	6-8%	6-8%
4. Electrical strength i) in air ii) In Oil	 7KV/mm ----------	 12KV/mm 35KV/mm
5. Ash content	Maximum 1%	Maximum 0.7
6. Moisture content	Maximum 8%	Maximum 8%
7. Oil absorption	----------	Minimum 9%
8. Heat stability	As per IS 9335-part 3	As per IS 1576
9. Tear index	As per IS 9335-part 3	As per IS 1576

Bidder has to submit the test certificates as per IS-9335, IS-1576 for all type of insulating materials covering above stated parameters along with below parameters during stage inspection :

1. Substance (Grammage) (g/m3)
2. Compressibility
3. Tensile strength
4. Conductivity of water extract
5. Shrinkage in air
6. Flexibility
7. Cohesion between plies1.
8. Elongation
9. Air permeability

11. Bidder shall provide the below details in below table

Sl. No.	Description	Unit	As furnished by bidder
1.	DPC Paper for HV and LV conductors :		
	Type of DPC Paper		
	Make of DPC Paper		
	Thickness DPC Paper	mm	
	Percentage Overlapping (not less than 60%)	%	
2.	Type of Paper for Interlayer Insulation		
	Make of Paper for Interlayer Insulation		
	Thickness of Paper for Interlayer Insulation	mm	
3.	Type of Paper for Insulation Between HV and LV winding		
	Make of Paper for Insulation Between HV and LV winding		
	Thickness of Paper for Insulation Between HV and LV winding (for all sizes)	mm	
4.	Type of Pressboards used for Insulation Between HV and LV winding		
	Make of Pressboards used for Insulation Between HV and LV winding		
	Thickness of Pressboards for Insulation Between HV and LV winding (all size)	mm	
5.	Type of Paper used for insulation between core and LV		
	Make of Paper used for insulation between core and LV		
	Thickness of Paper used for insulation between core and LV (All sizes)		
6.	Type of Pressboard used for insulation between core and LV		
	Make of Pressboard used for insulation between core and LV		
	Thickness of Pressboard used for insulation between core and LV (All sizes)		
7.	Material used for top and bottom yoke insulation		

			Make of material used for top and bottom yoke insulation		
			Thickness of material used for top and bottom yoke insulation	mm	
		8.	Type of material used for Spanner, wedge and Axial for insulation		
			Type of material used for Spanner, wedge and Axial for insulation		
			Thickness of material used for Spanner, wedge and Axial for insulation (all sizes)	mm	

5.4 LOSSES

1. The bidder shall individually guarantee No load loss (Iron loss at rated voltage and frequency) and full load Copper Loss (at 75ºC) without any positive tolerance.
2. The bidder shall also guarantee the total loss at 50% and 100% load condition (at rated voltage and frequency and these should be within the limits of maximum total losses declared by TPNODL for both 50% and 100% loading values (as per table below) :

Description	Rating (kVA)					
	160	**250**	**315**	**400**	**500**	**630**
Maximum Losses at 50% loading at 75ºC (Watts)	670	980	1025	1225	1510	1860
Maximum Losses at 100% loading at 75ºC (Watts)	1950	2930	3100	3450	4300	5300

Description	Rating				
	800kVA	**1 MVA**	**1.2 MVA**	**1.6 MVA**	**2 MVA**
Maximum Losses at 50% loading at 75ºC (Watts)	2287	2790	3300	4200	5050
Maximum Losses at 100% loading at 75ºC (Watts)	6402	7700	9200	11800	15000

No positive tolerance shall be allowed on the losses as mentioned above. However, bidder can offer losses less than specified but no consideration in cost will be given for the same.

3. **The successful bidder shall guarantee the quoted losses for at least five years. If at any point of time during operation if it is found that the total losses at 50% and 100% load are more than the values given in specifications, then bidder shall be liable to pay a fine of Rs 250 per watt to the amount by which losses at 50% loading and 100% loading increase with respect to the values given in specifications.**
4. During testing at Bidder's works if it is found that the actual measured losses are more than the values quoted by the Bidder, TPNODL shall have the right to reject the complete lot.

5. During testing at Bidder's works, if the temperature rise exceeds the specified values, the entire lot shall be rejected by TPNODL.
6. During testing at Bidder's works, if the impedance values differ from the guaranteed values including tolerance, the entire lot shall be rejected by TPNODL.
7. Transformer losses shall be checked on any one of DT from supplied lot at TPNODL workshop. If it is found that the actual measured losses are more than the values quoted by the Bidder, TATA POWER- DDL shall have the right to reject the complete lot.

8. Bidder shall provide the below details in below table:

Sl. No.	Description	Unit	As furnished by bidder
1	No Load losses	Watt	
2	Load losses at 50%loading at 75° C	Watt	
3	Load losses at 100% loading at 75° C	Watt	
4	Total losses at 50%load at 75° C	Watt	
5	Total losses at 100% load at 75° C	Watt	
6	**Efficiency at 75 deg. C**		
7	**Efficiency at Unity P.F.**		
7.1	100% load	%	
7.2	80% load	%	
7.3	60% load	%	
7.4	40% load	%	
7.5	20% load	%	
8	**Efficiency at 0.8 P.F.**		
8.1	100% load	%	
8.2	80% load	%	
8.3	60% load	%	
8.4	40% load	%	
8.5	20% load	%	
9	**Regulation at :**		
9.1	Unity P.F. at 75 deg. C	%	
9.2	0.8 P.F. at 75 deg. C	%	
9.3	% Impedance at 75 deg. C	%	

5.5 TRANSFORMER TANK AND TANK CONSTRUCTION

1. The transformer tank shall be of robust construction, **rectangular in shape** and shall be built up of electrically tested welded mild steel plates.
2. The tank shall be fabricated by welding at corners. No horizontal or vertical joints in tank side walls and its bottom or top cover shall be allowed.
3. All welding operations should be carried by **qualified welders** (performance qualification certificates to the customer) as per the relevant ASME standards and a copy of the **welding procedure** has to be submitted to TPNODL at the time of drawing approval.
4. The **thickness of tank** should be as below:
   For top and bottom : 6 mm (min.)
   For Sides : 5 mm (min.)
   Tolerance shall be applicable as per IS 1852 as per above thickness band.

5. In addition the cover of the main tank shall be provided with an **air release plug.**
6. The tank plates shall be of such strength that the complete transformer when filled with oil may be lifted bodily by means of the lifting lugs provided. The top cover shall have no cut at point of lifting lug.
7. The transformer tank cover shall be bolted with tank rim so as to make a leak proof joint.
8. The tank plate and lifting lugs shall be of such strength that the complete transformer filled with oil may be lifted by means of lifting shackle.
9. The tank cover shall have slight slope (10 mm ± 2mm) towards HV side to drain rain water.
10. There must be sufficient space from the core to the top cover to take care of oil expansion. The oil volume inside the tank shall be such that even under the extreme operating conditions, the **pressure generated inside the tank does not exceed 0.4 kg/sq. cm positive or negative** and the tank shall be of adequate mechanical strength to withstand it.
11. The transformer should be capable of **withstanding 0.8kg/sq.cm air pressure and a vacuum of 0.7kg/sq.cm**. The permanent deflection of the flat plate, when the tank without oil is subjected to a vacuum of 525 mm of mercury shall not be more than the values specified:

Length of Plate	Deflection
Up to 750 mm	5.0 mm
751 mm to 1250 mm	6.5 mm
1251 mm to 1750 mm	8.0 mm
Above 1750 mm	9.0 mm

12. **The tank design shall be such that the core and the windings can be lifted freely without dismantling the bushings.**
13. All joints of tank and fittings shall be oil tight and no bulging shall occur during service.
14. Anti –theft stainless steel fasteners with breakaway nut shall be provided at top cover (minimum 4 nos. at corners) placed in between other bolts without affecting pitch of bolts.
15. The tightening torque chart to be provided for all bolts used. This shall be submitted along with each rating drawings.
16. The transformer shall be provided with four pulling lugs of MS plate of 8mm thick to pull the transformer horizontally.
17. The maximum overall size of DTs(including tolerance) shall be as mentioned below:

Rating	Size (LXB) in mm
Up to 500KVA	1800 X 1800
630KVA, 800KVA, 1MVA	2200 X 2000
1.25MVA	2200 X 2000
1.6MVA	2400 X 2200
2 MVA	2500 X 2300

Lifting lugs:

18. The transformer shall be provided with a minimum of four welded heavy duty enclosed lifting lugs of Structural steel E250 or better grade quality A (Minimum quality A) as per IS 2062 plate of minimum 16mm thickness for lower rating and gradually increased for higher rating as per weight suitably reinforced by vertical supporting flat stiffener smooth welded properly on the side walls up to reinforcing angle. They shall be so extended that cutting bend plate is not required. The transformer lifting lug shall be painted with yellow colour.
19. The location of lifting lugs shall be such that the clearance between lifting chain and nearest part of bushing shall be at least 100 mm.
20. There shall be facilities for lifting the core coil assembly separately.
21. The lifting lugs shall be designed in such a way that any two diagonal lugs are capable of lifting two times of the total weight of the transformer. The design of should be such that it should be suitable for 120degree lifting rope angle as per ASME B30.9 and at any point of time the maximum stress allowed on the Lug martial shall be lesser than 82MPa as per ANSI C.57.12.10
22. Calculation sheet for Lifting lug design to be submitted by Bidder. The calculation shall include the Stress on lifting lug material and stress on welding both. The Stress on the welding should be less than 840kg/cm2 as per ANSI C.57.12.10. All calculation to be done for considering lifting on any diagonal opposite two lugs conditions.
23. The lifting lugs shall be located on the side walls only and conservator on LT box side. Separate drawing to be submitted stating welding thickness, welding length (min. 120mm for 160KVA and higher as per rating and load) and location on tank along with stiffener support for all rating and all lugs.
24. Bidder shall provide the transformer size and clearances in below table:

Sl. No.	Description	Unit	As furnished by bidder
1	**Transformer overall Length x Height x width**	mm x mm x mm	
2	Only Tank **overall Length x Height x width**	mm x mm x mm	
3	HV Cable box overall LxWxH	mm x mm x mm	
4	LV Cable box overall LxWxH	mm x mm x mm	
5	**Clearances**		
5.1	Core and LV (minimum 5mm)	Mm	
5.2	LV and HV (minimum 8mm)	Mm	
5.3	HV Phase to phase (minimum 10mm)	Mm	
5.4	Between HV winding and Yoke (minimum 20mm)	Mm	
5.5	Between LV winding and Yoke (minimum 5mm)	Mm	
5.6	Between yoke and inside of tank to cover (minimum 100mm)	Mm	
5.7	Between yoke and bottom (minimum 10mm)	Mm	

		5.8	Any point of winding to tank (minimum 20mm)	Mm	
		6	**Calculated Impedance**	%	
		7.1	HV to Earth Creepage distance in oil (minimum 15mm)	Mm	
		7.2	LV to Earth Creepage distance in oil (minimum 5mm)	Mm	
		8.	Conservator dimension (dia x Length)	Mmxmm	
		9.	Size of Pipe used for conservator to Tank	Mm	
		10.	Size of Pipe used for Valves	Mm	
		11.	Base Channel size	Mmxmmx mm	
		12.	No. of Radiators	Nos	
		13.	No. of fins per Radiator	Nos	
		14.	Dimension of radiator fins (L x W)	Mmxmm	
		15.	Make of Tank material		
5.6	**RADIATORS**	1. Radiators of pressed steel type conforming to the design requirement suitable for mineral oil and Ester oil (all type) type transformer. 2. The Pressed Steel type should be used in vertical formation without any bending and should be individually tested for leakage and pressure test etc. before welding with the main tank. 3. **Thickness** of sheet for radiators shall be **1.20 mm (min)**. 4. The **mounting** of the radiators shall be **non-detachable** (i.e., they should be welded permanently with the tank). 5. The number / cross section / length / fixing arrangement of radiators shall be indicated in the general assembly drawing. **6.** Radiator thickness must be uniform without any dent or damage and also no bulging or concave should occur even after performing pressure/ vacuum test and temperature rise test. **7.** Corrugated designs are not accepted.			
5.7	**GASKET**	1. **Cork rubber gaskets** conforming to Type C , grade RC70 as per IS 4253 (Part-2) shall be provided for all oil bearing & water ingress resistant requirements for components like HV & LV bushings bottom gasket, HV & LV terminal box, Top Cover, Conservator, Valves etc. 2. **Nitrile/Neoprene rubber gaskets** conforming to Type IV – 4C (heat and oil resistant) as per IS 11149 shall be provided for bushing O ring (oil gaskets). 3. **Only Joint free Gasket to be used. Only in case of top cover gasket and terminal box gasket up to two dove-tail joints with adhesive shall be allowed. The terminal box gasket joint shall come at bottom part.** 4. Cork sheet, Nitrile/Neoprene rubber gaskets shall be free from cracks, pinholes and shall be capable of being cut or punched without crack or tearing.			
5.8	**TAPS**	1. Rotary/Ring type tap changing mechanism to be mounted on side of the transformer in such way that could be easily operated in smooth way. 2. Tap changing shall be carried out by means of an externally operated self-position switch and when the transformer is in de-energised condition. 3. The taps shall be provided in HV winding and each tap change shall result in voltage variation of 2.5%.			

		4. Switch position no.1 shall correspond to the maximum plus tapping (i.e.+5%) and position no.7 shall correspond to minimum tapping (i.e,-10%). 5. Tap no. 3 to be considered as principal tap position. 6. Provision shall be made for locking the tapping switch handle in position. Suitable plate shall be fixed for tap changing switch to know the position number of tap.
5.9	**BUSHINGS AND TERMINAL CONNECTORS**	**A. HT Bushings (12 kV/250 A):** 1. The bushings shall be outdoor type, external part shall be made of porcelain material. Rods, nuts and flat washer (Tightening Nut along with Check Nut) shall be made of tinned brass material. 2. IS to be followed: IS 8603(Part- I) for porcelain, IS 3347 part3 section 2 for metal part and Complete bushing shall comply IS 2099. **For Pole mounted transformers: Top cover mounting bushing** 3. The HV bushings shall have Hot Dipped Galvanized or Alu-zinc coated or SS material arcing horns with 8mm diameter. The thickness of coating shall be **86 microns** (minimum at any point). 4. The HV bushing shall be fitted with bird guard on the bushing connector. 5. Completer Tinned Brass joint less connectors shall be provided on HV bushing rods suitable for bare dog conductor connections. The connector should have large contact area. Hardware shall be Hot Dipped Galvanized or Alu-zinc coated or SS material. **For Plinth mounted transformers:** 6. Transformer shall be with HT cable box on sidewall of tank having porcelain bushing as specified above. **B. LT Bushings(1.1kV/suitable current rating):** 1. The bushings shall be of outdoor type made of porcelain material, The rod shall be Tinned copper for all rating along with neutral. The nuts and washers shall be of (Tightening Nut along with Check Nut) tinned brass material. 2. IS to be followed: IS 3347(Part-I) (Section-1 for porcelain and Section 2 for metal part) and IS 7421(latest amendment of IS). 3. The metal portion of the internal HV & LV bushing inside the tank shall remain dipped in oil in all operating condition. 4. The LV bushings shall be provided on the side wall of tank along with cable box. 5. The bushing tinned copper stem sizes to be followed are,

Rating	Size of stem
160kVA	M12
250kVA	M20
400kVA	M20
500kVA	M30
630kVA	M30
800kVA	M42
1000kVA	M42

5.10 CABLE BOXES

1. For HV side, bare bushings shall be provided on top for 160 kVA, 250 kVA, 315 kVA, 400 kVA and 500 kVA transformers suitable for bare jumper connections. For plinth mount DTs in these ratings, sidewall mounted bushings with cable box are to be provided.

Rating (kVA)	**160**	**250**	**315**	**400**	**500**	**630 & above**
HV side	Bare bushings on top of transformer when plinth mount not mentioned. When item name has mentioned of plinth mounted then cable box with glands to be provided.					Cable Box with single compression brass glands
LV side	Cable Box with single compression brass glands to be provided.					

2. Cable boxes made up of Mild Steel 2.2mm thickness with suitable handle and front cover to be provided for both HV and LV side.
3. Water should not accumulate on cable boxes and proper slope shall be provided in order to ensure drainage of water.
4. Cable box protection shall be IP 55. Test reports to be submitted from NABL accredited lab.
5. Cable box should be painted in same way as that of tank painting with treatment.
6. HV and LV cable boxes shall be fixed on opposite sides on the tank with nuts and bolts (gasket placed in between them) in such a way that they can be completely removed whenever required.
7. Canopy shall be provided on all gasket joints, the bend edges of cover overlapping gasket to protect from rain and sunlight shall also accepted.
8. Cable cleating arrangements shall be provided just below terminal box (outside) to keep Cable straight and to support cables to avoid tension on bushings due to cable weight.
9. For Cable clamping, **Fire retardant nylon grade material to be used for oval shaped clamping arrangement** with GI nut bolt on both HV & LV Side.
10. For HV Cable box, Non-magnetic Gland plate shall have thickness of 3mm and shall be in two parts in such a way that HV cable can be easily removed.
11. For LV cable box, Non-magnetic Gland plate shall have thickness of 4mm and shall be in two or more parts in such a way that LV cables can be easily removed by removing the gland plates.
12. Gland plates shall be mounted separately with nut & bolt arrangement and gasket in between them.
13. The size of the cable box cover should be moderate so that only one or two people is enough to lift it.
14. The bidder shall submit **drawings for the box with internal details** along with the transformer for approval.

HV CABLE BOX:

15. The HV box shall be designed and fixed on transformer such way that only opening of cover shall facilitate for working on cable termination with ease of accessibility of terminal.
16. HV box gland plate shall have Single compression gland designed for 11kV, 3C X 150 or 3CX400 sq.mm XLPE Cable as per drawing approved from TPNODL.

17. Distance between HV gland plate and HV bushings should be minimum 650 mm.
18. Earthing provision (Body earth- outside and for cable earthing- inside of box) shall be provided in the HV box with M12 SS bolt & SS washers. The equalizer strip with M12 boss arrangement required on terminal box cover.
19. Gland shall be SCG 18 single compression brass gland suitable for diameter of 91mm cable.
20. Bolted type terminal cover with M14/M16 SS bolts and washer (M12 bolts for 160 and 250KVA DT) to be provided. Fix Stud arrangement is not accepted for fixing cover. The gasket should be on inner side of cover. Standard Danger marking with red background required on front.

LV CABLE BOX:

21. Neutral terminal of LV winding shall be brought out on LV phase terminals to form four wire system.
22. Epoxy Insulators shall be provided from top side in LV box to support LV busbar.
23. LV busbar shall be of AL material & shall have clearances as mentioned in GTP.
24. Lugs shall be of AL material with tin coating & shall comply the IS requirements.
25. Arrangement in the LV box shall be BYRN from left to right when viewed from LV front.
26. All Nut bolts shall be as per Clause 5.24 and size selection shall with as per the hole size of the AL lugs to be used.
27. The Neutral to be brought out from box through bushing and shall have same dimension as that of phase bushing.
28. GI earth strip (Size - 50 x 6 mm) shall be provided from neutral bushing to both side of the box and shall be extended up to bottom of the terminal box both sides.
29. Insulator support to be provided on terminal box both sides for GI earth strip so as to avoid tension on secondary neutral bushing.
30. There shall be gland provision in side wall bottom or base plate of the LV box with gland of size suitable for 10core cable for taking out voltage terminal to box. 10 core cable up to box shall also be provided wired up from bus bar to TB.
31. For Transformer up to 800kVA ratings, In LV box, there must be provision for flexible mounting arrangement to fix multiple sized CT.
32. There must be proper provision of connecting voltage wires with closed thimble/lug on LV bus bars (Phases and neutral) with nut bolt size of 6mm &wires to be taken out and connected in the Metering terminal box.
33. Earthing provision (Body earth) shall be provided in the LV box with M12 boss and SS bolt arrangement. The equalizer strip with M12 boss arrangement required on terminal box cover.
34. The clearance above bushing shall be 120mm and below busbar cable mounting bolt shall be 450mm up to gland plate.

35. The no. and size of cables for installation on LV side shall be as follows:

Transformer Rating	Size of cable for Phase & Neutral	No. of runs per phase	No. of runs for neutral
1 MVA		3	3

Transformer Rating	Size of cable for Phase & Neutral	Gland Size for LV Box	No. of runs per phase	No. of runs for neutral
315 kVA	1C x 630 sq. mm(1.1 kV Class)	SCG10	1	1
400 kVA			2	2
500 KVA			2	2
630 kVA			2	2
800kVA			3	3
160 kVA	1C x 300sq.mm (1.1 kV class)	SCG7	1	1
250 kVA			1	1
1.25MVA	1C x 630 sq. mm (1.1 kV Class)		4	4
1.6 MVA			5	5
2 MVA			6	6

36. The LV busbar shall be one continuous conductor strip with current density of 1A/sq. mm and length should be min. 160mm long for 160kVA and 225mm for 250kVA. The support insulator shall be provided at the end of busbar such that cable load shall be on top end support. Neutral busbar shall be of same size of phase. The lug shall be have single hole. Busbar shall be connected on four bolts on brass palm connector.
37. Bolted type terminal cover with M14/M16 SS bolts and washer (M12 bolts for 160 and 250KVA DT) with standard pitch to be provided. Fix Stud arrangement is not accepted for fixing cover. The gasket should be on inner side of cover. Standard Danger marking with red background required on front.

5.11 TERMINAL CONNECTORS

HT TERMINAL CONNECTOR:

1. Tinned Brass connectors shall be provided connected with HV bushing rods for bare top plate bushings of 160 to 500kVA rating.
2. UV resistant polymeric bird guard shall be provided on the HV bare bushing terminals.
3. For plinth mounted & 630kVA and above ratings Aluminium lugs (with minimum of 2 hole) suitable for 3CX400 sq.mm XLPE shall be provided at HT side for cable connection.

LT TERMINAL CONNECTOR:

4. Tinned Brass palm connector (with current rating w.r.t Load current), and Aluminium busbar (current density: not more than1 A/mm²) shall be provided.
5. Busbar shall be supported with insulator at the top portion of terminal box.
6. Aluminum lugs (with minimum of two holes) shall be provided with suitable size (no. of lugs as per clause 5.10 and size of lugs as per IS 8309) for the LV cables. (Can be share our drawing or specs)

5.12 METERING CURRENT TRANSFORMERS

Note: Metering CTs shall be required for transformers of 250kVA and above ratings.

1. Cast Resin Type CTs shall be provided for transformers on the LT side for metering purpose.
2. The CTs shall be Resin Casted ring type and a thickness of min 2mm of resin above the coil of the CT to be ensured.
3. The core of the CT shall be of high grade non-ageing electrical silicon CRGO Steel or better grade of first quality having low hysteresis loss and high permeability to ensure accuracy at both terminal and over current/ voltage.
4. The grade of the Core shall be M4 or better.
5. The Resin Casted CTs shall be embossed as 'P1' and other side as 'P2'. Lock side pole of coupler shall have S1 terminal and other pole shall have S2 terminal.
6. The Coil shall be insulated with electrical grade Polyester Tape and the insulation shall be of high insulation grade, excellent mechanical strength (tensile, tear, and stretch), high purity, chemical stability, and heat resistance.
7. The Copper wire used shall be super enameled as per the IS 4800 Part IX/ IEC 317.
8. The wiring shall be enclosed in such a way that it can't be disturbed during maintenance activities.
9. The CT shall be mounted outside the tank with suitable clamping arrangement (fiber glass material).
10. The position of secondary terminals shall be such that, it will face towards outside after installation on bushing or bus bar of transformer.
11. Mounting arrangement should be such that the CT shall be replaceable at site.
12. The terminals shall have shorting facility and it should not get saturated up to 200% of rated current.
13. The weight of the Ring type CTs shall not exceed approx. 2.5 Kg +/- 10%.
14. The CTs shall have following parameters.

Accuracy class	0.5
Burden	20 VA
Application	Metering
ISF	5
CT ratio for	As mentioned in clause 4.28

5.13 Auxiliary TERMINAL BOX

Note: Aux. Terminal Box shall be required for 250kVA to 1MVA and ratings above 1MVA marshalling box shall be required.

1. Aux. terminal box of suitable size made up of **Mild Steel** and with **theft proof locking arrangement** for box.
2. Box shall be provided with Stud Type terminal blocks with 2 spare terminals. shorting links required for CT connections.
3. 10 core multi stranded PVC armored cable (2.5 sq.mm Cu FRLS PVC stranded panel wires) shall be used to terminate connections from CT and voltage terminals (6 CT wires and 4 voltage wires) at LV side to the CT terminal box.
4. PVC ferrules engraved with black letters shall be used to mark the wires coming from LV box for CT and volatge.
5. **PVC ferrules** engraved with black letters shall be used to mark the wires in the terminal box.

		6. Holes with PVC glands to be provided on bottom side of this box as incoming (01nos.) and outgoing (02Nos.) for 10CX2.5 sq.mm cable and for Auxiliary cables of magnetic float switch, PRV contacts, OTI aux. cable. 7. Terminal and cable entry for secondary wiring of Magnetic Float switch in conservator, OTI aux cable, PRV cable (for plinth mount DT) to be provided as required. 8. Terminal box shall have IP 55 protection with rubber gasket and bend cover canopy over joints. 9. Terminal box must have provision for connecting I-type or U-type pin arrangement without spring arrangement.
5.14	**EQUILISING/ EQUIPOTENTIAL STRIP**	1. The Transformer top cover shall be connected with main tank using **tinned copper strip (30mm wide, 0.7mm thick)** at two places (diagonally opposite with each other). 2. The strip should touch bare surface of tank in order to ensure proper electrical connection of tank body with top cover with the strip. 3. All the covers like inspection cover, LV box cover, HV box cover, Conservator cover must be electrically connected using **tinned copper strip (30mm wide, 0.7mm thick).** 4. Separate arrangement to be made and cover tightening bolt not to be used for equipotential strips.
5.15	**EARTHING CONNECTIONS**	**NEUTRAL EARTHING:** 1. Separate LV neutral bushing to be provided on top of LV box for neutral earthing. 2. For connecting LV neutral bushing shall be provided with 2 Nos of 50x6 mm GI strip, one on each side of terminal box (The thickness of GI coating of neutral earthing strip shall be **86 microns** (minimum at any point). 3. At the bottom of the GI strips two concentric holes of 12 mm diameter shall be made and M12 size SS nuts, bolts and SS washer shall be provided for them. **BODY EARTHING:** 1. Two body earthing terminals pads (630kVA and above)/ boss arrangement (up to 500sq.mm) shall be provided on Transformer tank with M12 SS Bolt with 70 sq. mm lug. with SS plain washer and spring washer. 2. It shall be located on the lower side of the transformer, diagonally opposite to each other. 3. Each Earthing terminal pad on DT shall be provided with two SS M12 bolts on each pad on each side with two 70 sq.mm AL Lugs and washers.
5.16	**OIL**	**Note: Default Oil shall be Mineral oil only if not specified / asked for other oil.** **Mineral Oil: In case of Mineral Oil below are the requirements to be fulfilled:** 1. All transformers shall be filled with new, unused, clean, standard mineral oil in compliance with IS 335-2018 / IEC 296 type-II and shall be free from all traces of polychlorinated biphenyl (PCB) compounds. 2. The use of recycled oil is not acceptable. 3. Oil shall be filled under vacuum before filling it shall be filtered and tested (as per IS 6103). 4. The test parameters should be as per the table below:

		Test parameters / **Values** Break Down Voltage (min) — 60 kV Water content ppm, (max.) — 20 ppm Specific resistance (min.) (at 27˚C) — 2.5 × 10^{12} ohm-cm Bidder has to provide the oil data in below table: **Sl. No.** / **Description** / **Unit** / **As furnished by bidder** 1 — **Type of oil** 2 — **Oil Qty. for first filling** — Ltr. 3 — Grade of Oil 4 — Maker's name 5 — BDV at the time of first filling — kV
5.17	**CONSERVATOR**	1. The conservator shall be supported / fixed on the main body of the transformer tank. 2. The capacity of the conservator tank shall be designed keeping in view the total quantity of oil and its contraction and expansion due to temperature variations. The total volume of conservator shall be such as to contain **10% quantity of the oil used in transformer**. Normally, at least **30% volume of conservator** shall be filled with Oil. 3. The connecting pipe of the conservator shall be so fitted to transformer tank that the pipe can be detached from the tank. 4. Jointless pipe shall be used which shall be connected with round flanges. 5. The inside diameter of the pipe connecting the conservator to the main tank shall be within 25 to 50 mm and it should be projected into the conservator so that its end is approximately 20mm above the bottom of the conservator so as to create a sump for collection of impurities. The minimum oil level corresponding to -5°C should be above the sump level. 6. The conservator oil filling cap/hole shall be of 32mm diameter & female type cap to be provided. 7. For DT up to 1600kVA, the conservator to be fitted with float switches such that it shall operate/open contact when the oil level in conservator goes below -5 degree C /Minimum mark. The float switch shall be with normally closed type. This contact shall be wired up in auxiliary terminal box. 8. Buchholz relay: The pipe should not contain any right angle elbows. Its diameter should correspond to the diameter of the hole for the passage of oil of the relay. The pipe must be arranged to slope upwards towards the conservator at an angle of about 2 to 4 degrees to the horizontal (max 5 degrees). The part of the pipe preceding the relay should be straight for a length equal to at least five pipe diameters; the part of the pipe leading to the conservator immediately adjacent to the relay should be straight for a length equal to at least three pipe diameters. 9. The Oil conservator shall be provided with: • **Oil level indicator** (as per clause no. 5.18). • **Dehydrating breather** (as per clause no. 5.22). • **Drain plug**

		• **Oil filling hole** (1.25 inch/32mm with thread size of BSP 1.25inch, 11TPI) with cover. • **Detachable end plate** on one side (the side on which the gauge glass is fitted), to enable the maintenance staff to periodically clean the inside of the conservator tank. • **A rain shed should be provided on top portion of gasket joint.**
	Center of Gravity	The transformer should be designed in such a way that the centre of gravity of complete transformer with oil and with all accessories shall fall at the vertical centre at lower height such that the transformer should be stable on flat surface ground and while lifting at lifting hooks.
5.18	**OIL LEVEL INDICATOR**	1. Oil level indicator with **prismatic glass and red colour background** shall be provided. 2. The oil gauge glass shall be removable and so embodied in the end plate so as to prevent oil leakage. **3.** The Oil level indicator should indicate oil level at minimum, normal and maximum as -5˚C, 30˚C and 90˚C respectively.
5.19	**EXPLOSION VENT / PRESSURE RELEASE DEVICE**	1. Explosion vent shall be provided on the top cover for DT up to 500kVA pole mounted only. Plinth mount shall have PRV. 2. Double diaphragm with oil observation gauge (prismatic Type) shall be provided on explosion vent pipe. 3. All plinth mounted DT & 630kVA and above DT shall be provided with PRV/PRD with auxiliary contacts. The contact to be wired up in the auxiliary terminal box. 4. PRV shall be provided to operate before reaching the test pressure as specified in the above class. 5. PRV shall not have air release arrangement. 6. The PRV shall seal-off after the excess pressure has been released and it shall have mechanical flag arrangement. 7. The PRV shall have NO, NC contacts wired up in auxiliary terminal box.
5.20	**AIR RELEASE PLUG**	The cover of the main tank shall be provided with an **air release plug on all ratings.**
5.21	**DRAIN VALVE AND FILTER VALVE**	1. The drain valve and filter valve shall be of Brass with gate valve. 2. The drain valve and filter valve shall have double round flanges. One side shall be fixed with tank and other side should be left open for oil filling/filtration purpose. 3. The drain valve and filter valve shall be provided with embossed name plate stating drain valve and filter valve. 4. The drain valve shall be located on the bottom and filter valve shall be provided at side top of tank. 5. Locking arrangement shall be provided to stop movement of hand wheel. 6. The valves shall be covered with a MS box of 2mm thickness by welding on tank. The paint thickness shall be min. 80 micron on the box.

5.22	**DEHYDRATING BREATHER**	1. The breather pipe shall enter the conservator from the upper side of the conservator. 2. The breather shall contain 500 gm. Of silica gel for 160 kVA DTs and 1 kg of silica gel for 250/315/400/500/630 kVA/800kVA & 1MVA DTs and 2kg for above 1 MVA rating. 3. The silica gel shall be blue colored as per IS: 3401 – 1992. The granules size should be 3-5 mesh (4 to 6.73mm) up to 2kg capacity breather. 4. The body of the breather shall be unbreakable, transparent, UV stabilized seamless polycarbonate tube of minimum thickness 3mm 5. The top cover shall be of pressure die cast aluminum and powder coated. 6. The oil cup shall be of UV protected polycarbonate. 7. Oil cup shall have marking of oil filling level 8. The breather shall be supplied as per approved make and as per specifications. 9. The gasket should be of Class 3B, Type III as per IS 11149 Nitrile rubber (Oil resistant gaskets) 10. All tie rods and all hardware should be of stainless steel material (SS 304) 11. Breather mounting arrangement, a. Up to 2 kg capacity of Silicagel breather shall have top threaded mounting arrangement with 1/2''pipe having BSP threading. b. 2kg and above capacity shall have flange mounting with 4 holes of 12mm diameter on 83 PCD. 12. While fixing of breather on transformer Teflon tape should be used to make it air tight & water tight. This shall be checked during inspection and after receipt at our stores on each transformer. 13. The breather should have passed air pressured test as per our specification i.e. Breather shall be tested at an air pressure of 0.35kg/cm2 (5 PSI) for period of 30 minutes. NABL lab test report to be submitted from OEM. For further details please refer our specifications of breathers.
5.23	**OIL TEMPERATURE INDICATOR**	14. Dial Type Oil temperature indicator shall be provided on the top cover of the transformer. It should be suitable for outdoor mounting with maximum indicator pointer. Fixing union shall be of female thread. 15. Range: 0- 120 °C, Accuracy: ± 4 °C. 16. The OTI shall have auxiliary contacts for alarm and trip contacts at preset temperatures, both the contacts should be wired up in the auxiliary terminal box. 17. The IP65 gland should be used for dial for taking out auxiliary wires. 18. The OTI shall be IP55 tested.
5.24	**FASTENERS**	1. All the bolts or studs shall be **at least 6 mm in diameter** except when used for small wiring terminals. **All bolts shall be of grade 8.8.** 2. All nuts/bolts/washers exposed to atmosphere shall be as follows: Size 12mm (or below) – Stainless Steel Above 12mm – Steel with antirust coating (aluzinc coated) ,Hot dip galvanized 3. All ferrous bolts, nuts and washers placed in outdoor positions shall be **hot dip galvanized** to prevent corrosion (except high tensile steel bolts and spring washers which shall have electrolytic action between dissimilar metals).

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		4. In case the galvanization is removed due to welding or manufacturing, the parts should be properly cleaned and painted to avoid exposure to atmosphere. 5. The cup type washers to be used as spring washers, cut spring washers are not accepted. 6. **Taper washers** shall be provided where necessary. **Protective washers** of suitable material shall be provided on front and back of the securing screws. 7. Each bolt shall project at least one thread but more than three threads through the nut. If bolts and nuts are placed so that they are inaccessible by means of ordinary spanners, special spanners shall be provided. The length of the screwed portion of the bolts shall be such that no screw thread may form part of a shear plane between members. 8. Core bolts shall be black colored high tensile grade-8.8
5.25	**SURFACE PREPARATION AND PAINTING**	1. The paint shall be applied by airless spray. 2. Steel surfaces shall be prepared by **shot blast cleaning** (IS-9954) to grade Sq.2.5 of ISO 8501-1 or **chemical cleaning** including phosphating of the appropriate quality (IS 3618). 3. **Heat resistant (Hot oil proof) paint** shall be used for the **inside surface** and whereas for **external surface one coat of thermosetting powder paint or one coat of epoxy primer (zinc chromate/Zinc Phosphate) followed by two coats of polyurethane (P.U.) base paint**. as per table given below:

S.No.	Paint type (should be UV restraint, non-fading)	Area to be painted	No of coats	Total dry film thickness (min); micron
1.	Thermosetting **powder paint**	Inside Outside	01 01	30 60
2.	**Liquid Paint**			
a.	Epoxy (primer)	Outside	01	30
b.	P.U. Paint (finish paint)	Outside	02	25 (each)
c.	Hot oil resistant paint	Inside	01	35

The two coats shall be of oil and weather-resistant nature with final coat as flossy and non-fading paint of shade 631 as per IS 5.

4. The dry film thickness shall not exceed the specified minimum dry film thickens by more than 25%.
5. Any damaged part shall be cleaned to bare metal with an area extending 25 mm around its boundary. A priming coat shall be immediately applied followed by full paint finish equal to that originally applied and extending 50 mm around the perimeter of the original damage. The repainted surface shall present a smooth surface which shall be obtained by carefully chamfering the paint edges before and after priming.
6. Painting shall not affect by weather changes & performance against pilling out or fading etc. to be guaranteed for 5 Years.

5.26	**RADIO INTEREFENCE**	When operated at voltages up to **12.5%** in excess of the normal system rating, transformers shall be substantially free from partial discharges (i.e. corona discharges in either internal or external insulation) which are likely to cause interference with radio or telephone communication.

5.27	**OVERLOAD CAPACITY**	The transformer shall be suitable for loading as per IS 2026 part 7
5.28	**FITTINGS**	The following standard fittings shall be provided: 1. Two earthing terminal pads/ boss with earthing symbol ⏚ for body earthing on opposite sides with 70sq.mm AL lug and M12 SS bolt and washers. 2. Air Release Device. 3. Thermometer Pocket with cap. 4. 1MVA and above with Inspection Cover. 5. Drain cum Sampling Valve & filter valve (Double Flanged for 630kVA and above & Up to 500kVA with T type drain valve without filter valve) and (0.75 inch nominal size thread, IS 554) with locking arrangement and a valve cover made of M.S. steel painted with minimum 70 micron layer. 6. Pressure relief device with auxiliary contacts for all plinth mount DT and explosion vent with double diaphragm & oil gauge for pole mounted DT up to 500kVA. 7. Welded fixed type Radiators. 8. HV cable box for plinth mount DT and LV cable box for all DT. 9. HV and LV Porcelain Bushings for up to 630kVA DT. 10. For HV bare bushing DT- bird guard on bushings terminals connectors 11. Terminal Connectors for HV (Tinned brass for pole mounted DT) /LV side (tinned brass palm connector, Al busbar with support insulator on top and Al lugs) up to 630kVA DT. 12. 1000kV and above DT, epoxy bushing in HV and LV with tinned copper busbar shall be accepted for compact designs with top cover terminal & cable box. 13. HV and LV two part Gland plates (Non-Magnetic and with Single compression Brass glands). 14. Conservator with Dehydrating Breather on LV side. 15. Prismatic Oil level Gauge and magnetic float switch (>160KVA rating) in conservator. 16. Lifting lugs (enclosed type) for the top cover, complete transformer and core and winding assembly. 17. Pulling Lugs. 18. Jacking Pads 19. Stiffener Angle. 20. 2 Base channels all DT 21. Marking Plates as asked in clause 6.1 22. Oil Temperature indicator with alarm & trip contact (>160KVA rating) and Dial type OTI for up to 160kVA rating. 23. Magnetic float switch for 250kVA to 1600kVA DT on conservator tank. 24. Two GI earth strip of Size 50x6 mm for neutral earthing from both side of LV box with minimum GI coating thickness of 86 microns. With SS nut bolts and washer. 25. Magnetic Oil level Gauge (>1600kVA), Winding Temperature Indicator (>1600kVA), Magnetic Reed type Buchholz relay (for ratings above 1MVA) in line with IS 1180. 26. Marshalling Box with stud type terminals (for ratings above 1000kVA).

5.29	**WINDING TEMPERATURE INDICATOR (WTI)**	1. WTI shall be provided in one winding of each phase. 2. WTI shall be **indicating type**, responsive to the combination of top oil temperature and winding current, calibrated to follow the hottest spot temperature of the transformer winding. 3. WTI shall operate a remote alarm and trip in the event of attaining the predefined temperature.
5.30	**BUCHHOLZ RELAY**	1. Only for >1MVA DT. 2. Magnetic Reed type Buchholz relay shall be provided with alarm and tripping contacts to detect accumulation of gas. 3. The installation shall be fixed and weather proof to avoid any water seepage inside the relay. 4. Round flange of nominal pipe bore of **50mm diameter** shall be used. 5. In addition, pocket with heater coil along with Resistance Temperature Indicator (RTD) shall be provided for WTI and OTI. CT for RTD for winding hot spots shall be provided.
5.31	**MARSHALLING BOX AND PROTECTION**	1. Marshalling Box of suitable size, made up of **Mild Steel** and with **theft proof locking arrangement** shall be provided. 2. Marshalling box shall have IP 55 protection. 3. Above 1MVA DT - Marshalling Box shall have provision for wiring the **WTI, OTI, MOG, PRV, Buchholz relay and LT CT terminals.** The terminals shall be provided as per table below:

Element	Alarm	Trip
Oil Temperature Indicator	NO,NC,COM	NO,NC,COM
Winding Temperature Indicator HT Side	NO,NC,COM	NO,NC,COM
Winding Temperature Indicator LT Side	NO,NC,COM	NO,NC,COM
Buchholz	NO,NC,COM	NO,NC,COM
Magnetic Oil Level Gauge	NO,NC,COM	
PRV	NO,NC,COM	
LT Neutral CT Secondary Terminal	N	
LT Phase CT Secondary Terminal	RYB	
LT Voltage terminals	RYBN	
Spare TB	4 No.	

4. WTI meter shall be wired/ installed in the marshalling box.
5. 10 core PVC wire (4 sq.mm Cu FRLS PVC stranded panel wires) shall be used to terminate connections from CTs at LV side to the Marshalling box.
6. **Plastic ferrules** engraved with black letters shall be used to mark the wires in the marshalling box.
7. Wiring in Marshalling box shall be done by 2.5 sq.mm Cu FRLS PVC stranded panel wires.

		8. For TPNODL-Delhi, The equipments connected into marshalling box shall be compatible with power pack relay as per attached specification for 1MVA & above ratings. 9. All the cables and conduits between the transformer and control cabinet shall be included in the scope of supply by the bidder.
5.32	**MAKE OF MAJOR COMPONENTS & RAW MATERIALS**	The BA shall procure the following constituent items from the designated vendors as follows: **S.no / RAW MATERIAL/EQUIPMENT / MAKE** a) Copper — M/S Sterlite, M/S Hindustan Copper, M/S Hindalco. b) Core — M/S AK Steels, POSCO, Kawasaki/ JFE, Nippon Steel. c) Insulation paper and Pressboards — ITC paper, ABB, Raman Boards-Mysore, Senapathy Whiteley – Bangalore d) Transformer Oil (Mineral oil) — Savita, Apar, Gandhar e) Gaskets & Corks — Nu Cork, Anchor Corks f) Steel For Tank — M/s, TATA Steel, M/s SAIL, M/s. JSW Steel, M/s. IISCO, M/s. RINL/Vizag Steel, M/s. Jindal Steel, g) Dehydrating Breather — Yogya, Anushree, Electrical engineers Also, Bidder has to provide all test certificates from original manufacturers & relevant sourcing documents. BA shall also have shot blasting facility.
6.0	**NAME PLATE AND MARKING**	
6.1	**MARKING PLATES**	1. **Name Plate (Rating) Plate :** SS material A rating plate shall be fitted to each transformer in a visible position and shall carry all the information as **specified in clause no. 6.2** 2. **Terminal Marking Plate : on same name plate also accepted** • The terminal marking plate shall be provided which shall be strictly in accordance with **figure 4 of IS 1180-Part 1: 2014**. This plate may be combined with the rating plate or can be provided separately.

- Value of short circuit impedance on extreme tapping and on principal tapping and indication of winding to which impedance is related has to be displayed additionally.

3. **Details Plate :** MS sheet of 2.5mm with punched details and welded on tank.

A separate plate of **size 125 mm x 125 mm** shall be provided having following details:

- Name of the firm.
- Serial No.
- Rating of transformer.
- Order no. and date.
- Date of dispatch.

4. **Guarantee Plate :**

A separate warranty plate made of **Stainless Steel** with following clause written on it.

"THE EQUIPMENT GUARANTEED UPTO A PERIOD OF 48 MONTHS FROM THE DATE OF COMMISSIONING OR 60 MONTHS FROM THE DATE OF LAST SUPPLY"

All the plates described above (clause 1 to 4) should be as followings:

Material	Stainless Steel
Thickness	1 mm
Engraving	The letters on the rating plate shall be engraved black on the white/silver back ground.
Fixing	Fixing screws shall be of stainless steel.

5. Danger Plate: On all cable boxes
Danger notice shall have red lettering on a white background on a plate as specified in **IS: 2551 – 1982.**

6. **BIS Certification Mark: On main name plate**
The Bidder is required to get approval from BIS and display BIS mark on the name plate.

7. BEE LABEL (up to 200 kVA transformers only):
A label shall be affixed on the front of the distribution transformer near the name plate, so as to be prominently visible. The label shall be non-detachable weather proof type with the following particulars shall be displayed on its label, namely:

1. the logo of the Bureau of Energy Efficiency
2. that the equipment is a distribution transformer

		3. that it is an oil filled, naturally cooled type 4. name of the manufacturer and brand 5. Capacity in KVA as tested 6. Voltage is up to 11 KV 7. Total losses at 50% loading in watts 8. Total losses at 100% loading in watts 9. Star level 10. Model and year of manufacturing. 11. Bureau's authorisation number **8. <u>Control Circuit drawing Plates:</u>** • Engraved drawing for control circuit unit shall be available on Marshalling box. The design, colour, size and content of label shall be as specified in the schedule annexure IV.
6.2	**NAME PLATE DETAILS**	The name plate shall be strictly as per **IS 1180: 2014 (figure 1)**. Additionally, following points shall be displayed : **1. Actual no load losses of transformer.** **2. Actual total losses of transformer at 50% load and 100% load.** 3. Standard mark (BIS certification). 4. "**PROPERTY OF TPNODL**" shall be written in bold letters. 5. PO number with date has to be mentioned. 6. Overall dimensions of the transformer.
6.3	**MARKING**	1. All transformers shall have HV phase windings marked in both, the terminal boards inside the tank and outside with capital letter 1U, 1V, 1W. 2. The LV winding for the same phase shall be marked by corresponding small letter 2u, 2v, 2w. The neutral point terminal shall be indicated by the letter 2n. 3. The markings shall be done by steel strips in which marks had been engraved in black colour. 4. Colour marking of the bushings shall be done. 5. On the top cover of tank and the core channel, Manufacturer's name and Manufacturer's serial no. shall be engraved. 6. On the body of tank, Manufacturer's name, rating, serial no. and year of manufacturing shall be written with black paint on yellow base. It should be written in suitable place in approved format that it is readable from ground after installation on pole. 7. Durable QR code Sticker with name plate details and warranty details to be fixed on two accessible places i.e one on side wall of LV terminal box and other one is on conservator.
7.0	**TESTS**	1. All routine, acceptance & type tests shall be carried out in accordance with the IS 2026 and IS 1180: Part-1 (2014). 4. All routine & type tests shall be witnessed by the TPNODL/his authorized representative. 5. All the components shall also be type tested as per the relevant standards. **Following tests shall be necessarily conducted on the Distribution Transformers in addition to others specified in IS/IEC standards.**

7.1	**TYPE TEST**	1. Lightning Impulse Test [As per IS 2026 (Part 3) Clause no. 12]. 2. Temperature Rise Test [As per IS 2026 (Part 2) Clause no.4]. **NOTE**: Maximum measured total loss (No load at Rated excitation load loss at maximum current tap converted to 75°C reference temperature) at 100 percent loading shall be supplied during temperature rise test. 3. Short Circuit Withstand test [As per IS 2026 (Part 5)]. **NOTE:** Routine tests before and after short circuit test shall be conducted as per IS 2026(Part 1). 4. Pressure Test [As per IS 1180: Part 1 (2014)]. 5. Determination of sound levels [IS 2026 (part 10)]. 6. No load current at 112.5% voltage 7. BDV and moisture content of oil in transformer (IS 335). 8. Magnetic balance test. 9. Measurement of Zero-phase sequence impedance. 10. Measurement of Harmonics of no-load current. 11. Test to verify IP 55 for CT terminal Box and cable boxes. **Note:** - Out of the above mention type test, the tests under sl. No. 1, 2 and 3 shall be conducted at CPRI/ERDA labs and the balance tests to be conducted at NABL accredited labs, accreditation certificates to be submitted, in- house tests accepted if in-house lab is NABL accredited for these tests.
7.2	**ROUTINE TEST**	

Sr. No.	Test to be done	Reference BIS	Clause no.
1	Measurement of Winding Resistance on each tap.	IS 2026 (Part 1)	16.2.1 & 16.2.3
2	Measurement of voltage ratio, check of voltage displacement, polarity, phase sequence and vector group	IS 2026 (Part 1)	16.3
3	Measurement of short circuit impedance (principal tapping, when applicable) and load loss at 50% and 100% load	IS 2026 (Part 1)	16.4
4	Measurement of no load losses and magnetizing current at rated frequency and 90%, 100% and 112.5% of rated voltage	IS 2026 (Part 1)	16.5
5	Measurement of insulation resistance	IS 2026 (Part 1)	16.6
6	Induced over voltage withstand test	IS 2026 (Part 3)	11
7	Separate Source voltage withstand test	IS 2026 (Part 3)	10
8	Oil leakage test	IS 1180 (Part 1)	21.5.1.3
9	Neutral current measurement	IS 1180	7.9.2
10	BDV and moisture content of oil in transformer (Type-2 oil)	For mineral oil : IS 335 (2018)	For mineral oil : IS

				For Ester oil : IEC 60247 & IEC61099	335 Table 2
7.3	**ACCEPTANCE TEST**	1. Temperature Rise test on one unit of first lot against every release order / PO for each rating. For further lots, Tata power- DDL reserves the right to perform Temperature rise if required. [As per IS 2026 (Part 2) Clause no.4] 2. Oil leakage test for acceptance shall be conducted at pressure of 0.35kg/sq.cm for one hour. (IS 1180 (Part 1) clause 21.5.1.3) 3. The painted surface shall pass the Cross Adhesion Test (IS1180 part 1 clause no. 21.4.d). 4. Calibration of WTI and OTI. 5. Magnetic Balance Test. 6. OEM test reports for CT if used. 7. OEM test reports for breather for air pressure test. 8. At stage inspection -Checking of weight, dimensions, fitting and accessories, tank sheet thickness, oil quantity, material finish and workmanship, physical verification of core coil assembly and measurement of flux density on one unit of each rating of the offered lot with reference to the GTP and contract drawings. Oil BDV of all offered lot. 9. At least 10% transformer of the offered lot (minimum of one) shall be subjected to all the tests mentioned under the section 'ROUTINE Test" in presence of TPNODL's representative at the place of manufacture before dispatch without any extra charges. The testing shall be carried out in accordance with IS: 1180 and IS: 2026. 10. Device trails & test for 1MVA & above (Buchholz trip, Buchholz alarm, PRV trip, WTI alarm, WTI trip and OTI alarm. 11. The format of final inspection as per annexure-II. 12. At Stage and Final inspection, the incoming raw material and its movement/consumption record in the related jobs of TPNODL will be verified by inspecting officer. In case of any deviation or non-availability of such records, the offered lot may get rejected.				
8.0	**TYPE TEST CERTIFICATES**	1. The Bidder shall furnish the type test certificates of the offered rating and design of transformer for the tests as mentioned above as per the corresponding standards. 2. All the tests shall be conducted at CPRI / ERDA or as defined in 7.1 as per the relevant standards. 3. In the event of any discrepancy in the test reports, i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPNODL. 4. Type tests should have been conducted in certified Test laboratories during the period not exceeding 5 years from the date of opening the bid.				
9.0	**PRE-DESPATCH INSPECTION**	1. Bidder to raise the inspection calls for stage inspection and only after getting clearance from TPNODL shall proceed for further manufacturing. The bidder shall raise the inspection call for Final Inspection or prototype Inspection in TPNODL format. 2. If the prototype inspections asked for during drawing approval then bidder to make one unit of transformer and raise for inspection call for stage and final for prototype inspection.				

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		3. Equipment shall be subject to inspection by a duly authorized representative of the TPNODL. 4. Inspection may be made at any stage of manufacture at the option of the purchaser and the equipment if found unsatisfactory as to workmanship or material, the same is liable to rejection. 5. Bidder shall grant free access to the places of manufacture to TPNODL's representatives at all times when the work is in progress. 6. Inspection by the TPNODL or its authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications. 7. The BA shall ensure that 100% of the lot must be ready for inspection and atleast 10% must be ready with all mounting and accessories during inspection. 8. Material shall be dispatched only after getting MDCC (Material Dispatch Clearance Certificate) from TPNODL. 9. Following documents shall be sent along with material: - Test reports - MDCC issued by TPNODL - Invoice in duplicate - Packing list - Drawings & catalogue - Guarantee / Warrantee card - Delivery Challan. - Other Documents (as applicable) 10. To ascertain the quality of the transformer oil, the original manufacturer's tests report shall be submitted at the time of inspection. 11. Arrangements shall also be made for testing of transformer oil, after taking out the sample from the manufactured transformers and tested in the presence of TPNODL's representative. 12. In respect of raw material such as core stampings, winding conductors, insulating paper and oil, bidder shall use materials manufactured/supplied by standard manufacturers and furnish the manufacturers' test certificate as well as the proof of purchase from these manufacturers (excise gate pass) for information of the TPNODL. 13. The bidder shall furnish following documents along with their offer in respect of the raw materials: 1. Invoice of supplier. 2. Mill's certificate 3. Packing List. 4. Bill of Landing 5. Bill of entry certificate by custom. 14. To ensure about the quality of transformers, the inspection shall be carried out by the TPNODL's representative at following two stages: i. Online anytime during receipt of raw material and during manufacturing/assembly Stage.

		ii. At finished stage i.e. transformers are fully assembled and ready for dispatch. 15. Advance intimation of 7Days (Within Delhi)/12 Day (Outside Delhi) is required for both Stage and final inspections. 16. All tests and inspection shall be carried out at the place of manufacture unless otherwise specifically agreed upon by the manufacturer and TPNODL at the time of purchase. 17. The manufacturer shall offer the inspector representing the TPNODLL all reasonable facilities, without charges, to satisfy him that the material is being supplied in accordance with this specification. This will include Stage Inspection during manufacturing stage as well as Active Inspection during Acceptance Tests. 18. The stage inspection shall be done as per the format given in Annexure – I. 19. During the stage inspection a few assembled core coil and assembled Tanked transformer shall be dismantled (only in case of CRGO material) to ensure that the CRGO laminations, Windings and workmanship are of good quality. TPNODL also reserves the right to review any document or certificates related to material, manufacturing process, quality checks at any point of stage inspection. 20. TPNODL also reserves the right to inspect the tank of transformer before surface preparation and painting. The same shall be informed to TPNODL accordingly. 21. Final inspection Call for carrying out acceptance tests as per relevant IS/IECs shall be sent by the Bidder along with routine test certificates. 22. The bidder shall provide all services to establish and maintain quality of workmanship in his works and that of his sub-contractors to ensure the mechanical / electrical performance of components, compliance with drawings, identification and acceptability of all materials, parts and equipment as per latest quality standards of ISO 9000. 23. The TPNODLL has the right to have the test carried out at his own by an independent agency wherever there is a dispute regarding the quality supplied. Also TPNODL has right to test 1% of the supply selected either from the stores or field to check the quality of the product. In case of any deviation TPNODL have every right to reject the entire lot or penalize the bidder, which may lead to blacklisting, among other things. 24. At the time of inspection the material should be ready as specified, In case of material non-readiness or material failure in acceptance, Cost of re-inspection shall be borne by bidder.
10.0	**INSPECTION AFTER RECEIPT AT STORE**	1. The material received at the TPNODL store shall be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection. 2. In case the transformers proposed for supply against the order are not exactly as per the tested design, the Bidder shall be required to carry out the short circuit test and impulse voltage withstand test at its own cost in the presence of the representative of TPNODL. 3. The supply shall be accepted only after such test is done successfully, as it confirms on successful withstand of short circuit and healthiness of the active parts thereafter on un-tanking after a short circuit test.

		4. Apart from dynamic ability test, the transformers shall also be required to withstand thermal ability test or thermal withstand ability will have to be established by way of calculations 5. TPNODL reserves the right to conduct all tests on Transformer after arrival at site / stores and the manufacturer shall guarantee test certificate figures under actual service conditions. 6. TPNODL reserves the right to conduct short circuit test and impulse voltage withstand test in accordance to IS, afresh on each ordered rating at purchaser cost, even if the transformer of the same rating and similar design are already tested. This test shall be carried out on a transformer to be selected by TPNODL either at the manufacturer's works when they are offered in a lot for supply or randomly from the supplies already made to TPNODL stores. The findings and conclusions of these tests shall be binding on the bidder.
11.0	**GUARANTEE:**	1. Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under the contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a **period of 48 months from the date of commissioning or 60 months from the date of last supplies** made under the contract, whichever is earlier. 2. Bidder shall be liable to undertake to replace/rectify such defects at his own costs within mutually agreed timeframe and to the entire satisfaction of the TPNODL, failing which the TPNODL will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the TPNODL's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. 3. In case of Distribution transformer fails within the guarantee period TPNODL will immediately inform the Bidder who shall take back the failed Distribution Transformer within 15 days from the date of intimation at his own cost and replace / repair the transformer within forty five days of date of intimation with a roll over guarantee. The outage period i.e. period from the date of failure till unit is repaired / replaced shall not be counted for arriving at the guarantee period. 4. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.
12.0	**PACKING**	1. Bidder shall ensure that all the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit. 2. Transformers shall be delivered filled with oil and supplied with all accessories mounted. Screws and bolts shall be thoroughly tightened to ensure no leakage of oil. **Note: One use plastic not to be used for packing of the material.**
13.0	**TENDER SAMPLE**	All offered transformer detailed documents to be submitted as per clause no.18. The sample shall be not applicable.

14.0	**TRAINING**	Not applicable
15.0	**QUALITY CONTROL**	The bidder shall submit with the offer QAP & MQP indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. TPNODL's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections. The following information shall necessarily be submitted with the bid: 1. List of important raw materials, names of sub-suppliers for raw materials, standards to which raw material is tested and the copies of test reports of the tests carried out on raw materials in presence of Bidder's representatives. 2. List of manufacturing facilities available, level of automation achieved and the areas where manual process exists. 3. List of areas in manufacturing process where stage inspections are normally carried out for quality control and details of these tests and inspections 4. List of testing equipment for final testing with valid calibration reports. Manufacturer shall possess 0.1 class instruments for measurement of losses. 5. QAP withhold points for TPDDL inspection.
16.0	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in house testing facilities for carrying out all routine tests, acceptance tests and pre-dispatch inspection as per relevant International / Indian standards.
17.0	**MANUFACTURING ACTIVITIES**	The successful bidder will have to submit (after placement of RC) technical compliance document and drawing of each part along with CCA, breather, bushings, terminal box etc. as per RC line items to be submitted for getting approval before mass manufacturing. The first time supplier will have to make one prototype sample of each line tem of RC as per CA-B approved drawing within 30 days of drawing approval. Inspection call to be raised by bidder before 7 days of date of proposed inspection. TPNODL shall arrange inspectors and intimate or confirm the date. Any observation during inspection shall have to be addressed within 7 days and revised improved drawing & technical details to be shared to TPNODL for final approval. Manufacturing mass quantity to start only after getting CAT-A approved drawings or as per intimation from TPNODL.
18.0	**SPARES, ACCESSORIES ND TOOLS**	Bidder shall give an assurance that the reparability of transformer is ensured by using standard spare parts and accessories available in market in India.

19.0	**DRAWINGS AND DOCUMENTS**	Following drawings and documents shall be prepared based on TATA POWER- DDL specifications and statutory requirements and shall be submitted with the bid: a. Completely filled in compliance to each clause of Technical Specification and any Additional Details and Fittings. b. Description of the transformer and all components drawings. c. General arrangement for Transformer. d. LV terminal box drawing along with CT if applicable and cleat arrangement and gland plate drawing. e. Bill of material. f. Design calculation details of transformer losses, cooling, efficiency and current density, weight of coils and components. g. Experience Certificate and list h. Type test certificates. i. List of makes of major components as listed above. **Drawings / documents to be submitted for approval after the award of the order within 7 days before mass manufacturing are as under**: **List of Drawings/Parameters to be submitted:** 1. Technical Parameters as asked in Specification (General Technical Particulars, General Technical Requirements, Additional Details, Fittings, Type test Reports and Routine test certificates of bought out accessories). 2. General Arrangement Drawing of the Transformer (Front view, Top view and both sides view. Complete list of fittings to be displayed and quantities to be mentioned with the drawing). 3. Internal Core arrangement drawing. 4. Internal Core-coil assembly drawing. 5. Foundation Plan drawing. 6. Marking plates and Markings (as mentioned in clause 6) 7. HV and LV bushings drawing (with internal view and metal parts) 8. HT connector, LT connector (palm connector), Aluminum Busbar 9. HV and LV Box drawing. 10. Gland Plate for HV/LV box. 11. Conservator drawing. 12. Prismatic oil level gauge drawing. 13. Silica Gel Breather drawing. 14. Auxiliary Terminal Box drawing with internal wiring arrangement. 15. Gland plate of drawing 16. BH curve & Loss/Kg graph of core material offered. 17. The tightening torque chart to be provided for all bolts used in specific rating. 18. Type Test Certificates. 19. Installation/ Mounting Instructions/Drawing.

		20. Efficiency vs Load curve of the offered design. 21. Quality Assurance plan. **List of Calculations to be submitted:** 1. All the calculations shall be step by step showing the use of formulas and other practical considerations. **Concise calculations in table or excel sheet shall not be accepted.** Also, the reference (only standard sources as IS, IEC or any such standard is acceptable) of the formulas shall be mentioned. 2. Resistance Calculation (75 deg. C) 3. Load Losses Calculation (at 75 deg. C) 4. No load Losses. 5. Stray Losses. 6. Weight of Copper (Bare and with Insulation also). 7. Weight of Core. 8. Flux Density calculations. 9. Current Density Calculations. 10. Short Circuit withstand. 11. Temperature Rise Calculations. 12. Conservator Volume calculations 13. Cooling Calculations showing cooling with tank and radiators separately with no. of radiators and fins mentioned specifically (For both Mineral oil and Ester oil) 14. Calculation sheet for Lifting lug design and mounting lug design to be submitted by Bidder. **Additional Documents to be submitted :** a. List of raw materials as well as bought out accessories and name of sub-suppliers selected from those furnished along with offer. b. Type test certificates of the raw materials and bought out accessories. c. The successful Bidder shall submit the **routine test certificates of bought out accessories** and central excise passes for raw material at the time of routine testing. All the documents & drawings shall be in English language. After the receipt of the order, the successful bidder will be required to furnish all relevant drawings/parameters/calculation to TATA POWER- DDL for approval. **Instruction Manuals:** Bidder shall furnish softcopies of nicely bound manuals (In English language) covering erection and maintenance instructions and all relevant information and drawings pertaining to the main equipment as well as auxiliary devices.
20.0	**GUARANTEED TECHNICAL PARTICULARS**	**All clauses and points in the Specification to be complied for along with GTR and offered design details.**

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21.0 SCHEDULE OF DEVIATIONS

(TO BE ENCLOSED WITH THE BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

S.No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company:

Signature

Designation

ANNEXURE – I

INSPECTION TEST PLAN FOR STAGE INSPECTION OF DISTRIBUTION TRANSFORMER

S No.	Particulars	Details
(A)	**GENERAL INFORMATION:**	
1	Name of firm	
2	Order No. and Date	
3	Details of offer :	
a)	Rating	
b)	Quantity	
c)	Lot Serial Numbers	
(B)	**Position of Manufacturing for the offered quantity:**	
a)	Complete tanked assembly	
b)	Core and coil assembly ready	
c)	Core assembled	
d)	Coils ready for assembly	
	i) HV coils ii) LV coils	

Note: i) The stage inspection shall be carried out in case:-

a) 50% quantity is ready with core coil assembly (CCA).
b) 30% quantity of stacked core i.e core assembly shall be ready for inspection.
c) 30% quantity of HV & LV coils shall be ready for inspection.
d) 20% Quantity shall be available in Raw form i.e core stacking in process and coil winding in process for taking measurements.
e) Minimum 50% tanks must be ready for testing and inspection & balance quantity shall be in process.
f) One Tank must be ready for deflection test.

ii) Quantity offered for stage inspection should be offered for final Inspection within 15 days from the date of issuance of clearance for stage inspection, otherwise stage inspection already cleared shall be liable for cancellation.

S No.	Particulars	As offered	As observed	Deviation and Remarks
(C)	**Inspection of Core :**			
	(I) Core Material			
	1) Manufacturer's characteristic certificate in respect of grade of lamination used. (Please furnish test certificate			
	2) Thickness of core lamination			
	3) Remarks regarding Rusting and smoothness of core.			
	4) Whether laminations used for top and bottom yoke are in one piece.			

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	5) Core Losses												
	(II) Core Construction :												
	(1) No. of steps												
	(2) Dimension of steps												
	As offered :												
	Step No	1	2	3	4	5	6	7	8	9	10	11	12
	W mm												
	T mm												
	As found :												
	Step No	1	2	3	4	5	6	7	8	9	10	11	12
	W mm												
	T mm												
	(3) Core Diameter (mm)												
	(4) Total cross sectional area of core												
	(5) Effective cross sectional area of core												
	(6) Whether top yoke is cut for LV connection.												
	(7) If yes, at 6 above, whether Reinforcement is done.												
	(8) Core length (leg center to leg center)												
	(9) Window height.												
	(10) Core height												
	(11) Core weight only												
(D)	**INSPECTION OF WINDING**												
	(I) Winding material												
	(1) Material used for												
	a) HV winding												
	b) LV winding												
	(2) Grade of material for												
	a) HV winding												
	b) LV winding												
	(3) Test certificate of manufacturer (enclosed copy) for winding material of:												
	a) HV												
	b) LV												
	(II) Construction Details 1) Size of Cross sectional area of conductor for :												
	a) HV winding												
	b) LV winding												
	2) Type of insulation for conductor of :												
	a) HV winding												
	b) LV winding												
	3) Diameter of wire used for delta formation (mm)												
	4) Diameter of coils in:												
	a) LV winding												
	i) Internal Diameter (mm)												
	ii) Outer diameter (mm)												

	b) HV winding			
	j) Internal Diameter (mm)			
	ii) Outer diameter (mm)			
	5) Current density of winding material used for:			
	a) HV			
	b) LV			
	6) Whether neutral formation on top.			
	7) HV coils / Phase			
	a) Number			
	b) Turns/coil			
	c) Total turns			
	8) LV coils /Phase			
	a) Number			
	b) Turns / coil			
	c) Total turns			
	9) Total weight of coils of			
	a) LV winding (Kg)			
	b) HV winding (Kg)			
	10) Winding is free from metallic/non-metallic dust, burr and deformations under DPC paper.			
	a) HV Winding			
	b) LV Winding			
(E)	**INSULATION MATERIALS**			
	(I) DPC Paper Insulation			
	a) Type of Paper (Dotted Kraft or Diamond Dotted Kraft)			
	b) Make			
	c) Thickness (mm)			
	d) DPC laying direction			
	e) Percentage Overlapping			
	II) Interlayer Insulation			
	c) Type of Paper			
	d) Make			
	e) Thickness (mm)			
	III) Between HV and LV winding			
	a) Type of Paper			
	i. Make			
	ii. Thickness (mm) (all size)			
	b) Type of Pressboards			
	i. Make			
	ii. Thickness (mm) (all size)			
	IV) Between core and LV			
	Type of Paper			
	i. Make			
	ii. Thickness (mm) (all size)			
	Type of Pressboards			
	i. Make			
	ii. Thickness (mm) (all size)			
	V) Material used for top and bottom yoke and insulation			

	a) Type of Material			
	i. Make			
	ii.Thickness (mm) (all size)			
	VI) Material used for Spanner, wedge and Axial for insulation			
	a) Type of Material			
	i. Make			
	ii. Thickness (mm) (all size)			
	iii. Visual condition(i.e free from dust, burr, damage and sharp edges)			
	VII) Test certificate of manufacturer (enclose copy for all type of papers and pressboard used)			
(F)	**CLEARANCES: (mm)**			
	(I) Related to core and winding			
	1) LV to core (radial)			
	2) Between Hv and LV (Radial)			
	3) (i) Phase to phase between HV conductor			
	(ii) Whether two nos. press board each of minimum 1mm thick provided to cover the tie rods.			
	4) Thickness of duct between HV and LV coil mm			
	(II) Between core – coil assembly and tank:			
	1) Between winding and body			
	a) Tank length wise			
	b) Tank breadth wise			
(G)	**TANK :**			
	(I) Construction Details:			
	1) Rectangular shape			
	2) Thickness of side wall (mm)			
	3) Thickness of top and bottom plate (mm)			
	4) Provision of sloping top cover towards HV bushing.			
	5) Lifting lug dimension check 6) Lifting lug DP test on welding. 7) The welding thickness measurement with fillet gauge at both side of lifting lug.			
	8) Tank internal dimensions (mm)			
	a) Length			
	b) Breadth			
	c) Height			
	d) On HV side			
	e) On LV side			
	(II) General Details :			
	1) Inside painted by oil corrosion resistant paint (please specify which type of coating done)			
	2) Gasket between top cover and tank			
	a) Material			
	i) Thickness (mm)			

	ii) Jointing over laps (mm)			
	3) Provision of lifting lugs:			
	a) Numbers			
	b) Either reinforced by welded plates edge wise below the lug up to re-enforcing angle of the tank done.			
	4) Pulling lug of MS plate			
	a) Nos.			
	b) Thickness (mm)			
	c) Whether provided on breadth side or length side			
	5) Provision of air release plug			
	6) Provision of hot dip galvanized GI Nuts Bolts with 1no. plain and 1no. spring washer.			
	7) Deformation length wise side wall of tank when subject to			
	a) Vacuum of (-) 0.7 Kg/sq.cm for 30 minutes.			
	b) Pressure of 0.8 Kg/sq.cm. for 30 minutes.			
(H)	**RADIATORS:**			
	1) Fin radiators of 1.2 mm thick sheet			
	a) Dimension of each fin (L × B × T)			
	b) Fins per radiator			
	c) Total No. of radiators bank			
	2) Verification of manufacturer's test certificate regarding Heat dissipation (excluding Top and Bottom) in w/sq.m			
	3) Verification of position of radiator with respect to bushing.			
(I)	**CONSERVATOR**			
	1) Dimensions (L ×D) (in mm.)			
	2) Volume (m3)			
	3) Inside dia. of conservator tank pipe (mm)			
	4) Whether conservator outlet pipe is projected approx. 20 mm inside the conservator tank.			
	5) Whether arrangement made so that oil does not fall on active parts.			
	6) Whether die cast metal oil level gauge indicator having three positions at (-5^0C , 30^0C and 98^0C)			
	7) Whether drain plug & filling hole with cover provided			
	8) Inner side of the conservator Tank painted with -			
(J)	**BREATHER:**			
	1) Whether UV protected seamless acrylic body breather for silica gel provided.			
	2) Make			
	3) Capacity			
(K)	**TERMINALS:**			
	1) Material whether of Brass Rods/Tinned Copper.			
	a) HV			
	b) LV			
	2) Size (dia. In mm)			
	a) HV			
	b) LV			

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	3) Whether SRBP tube / insulated paper used for formation of Delta on HV.			
(L)	**BUSHINGS**			
	1) Whether HV bushings mounted on top cover/ side walls.			
	a) HV			
	b) LV			
	2) Whether arrangement for studs for fitting of HV Bushing are in diamond shape (so that arcing horns are placed vertically).)			
	3) Position of mounting of LV bushings			
	4) Bushing Clearance: (mm)			
	a) LV to Earth			
	b) HV to Earth			
	c) Between LV bushings			
	d) Between HV bushings			
(M)	**TANK BASE CHANNEL/ ROLLERS:**			
	1) Size of channel (mm)			
	2) Whether channels welded across the length of the tank			
(N)	**OIL:**			
	1) Type of oil and Name of supplier			
	2) Breakdown voltage of oil: (kV)			
	a) Filled in tanked transformer			
	b) In storage tank (to be tested by Inspecting officer).			
	3) Supplier's test certificate (enclose copy)			
(O)	**ENGRAVING:**			
	1) Engraving of Sl. No. and name of firm.			
	a) On bottom of clamping channel of core-coil assembly.			
	b) On Top cover of tank			
(P)	**i) MS Plate of size 125× 125 mm welded on width side of stiffener.**			
	ii) Following details engraved (as per approved GTP):			
	a) Serial Number			
	b) Name of firm			
	c) Order No. and date			
	d) Rating			
	e) Date of dispatch			
(Q)	**NAME PLATE DETAILS:** Whether Name Plate is as per approved drawing			
(R)	**COLOUR OF TRANSFORMER**			
	1) Tank body with			
	2) Conservator with			

PURCHASER'S OFFICER BIDDER'S REPRESENTATIVE

DATE OF INSPECTION

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ANNEXURE-II

FINAL INSPECTION TEST PLAN OF DISTRIBUTION TRANSFORMERS

1	Name of the firm / BA	
2	Date of inspection	
3	Details of offer made	
	(i) Order No. and date	
	(ii) Rating	
	(iii) Quantity	
	(iv) Sl. No. of transformers	
4	Date of stage inspection of the lot	
5	Reference of stage inspection clearance	
6	Sample Quantity (10% of the offered lot, min. one)	Sr. No.----------

ACCEPTANCE TESTS TO BE CARRIED OUT

S No.	PARTICULARS	Specified Value	Reference documents	Test Results	Pass/Fail
1.	Visual and Physical verification	GTP/Drawing	GTP/Drawing		
2.	Ratio Test		IS 2026 (Part 1) cl. 16.3		
3	Vector Group & Polarity check		IS 2026 (Part 1) cl.16.3		
4.	No load loss measurement	GTP value	IS 2026 (Part 1) cl.16.5		
5.	Max. Load loss measurement (watt) at 50% loading at 75ºC	GTP value	IS 2026 (Part 1) cl.16.4		
	Max. Load loss measurement (watt) at 100% loading at 75ºC Note – Calculation sheet to be attached along with	GTP value			
6.	Winding Resistance :	GTP Value	IS 2026 (Part 1) 16.2.1 & 16.2.3		
	H.V. (in Ohms) Resistance at 75 deg.C (Calculated)				
	L.V. (in Ohms) Resistance at 75 deg.C (Calculated)				
7.	Insulation resistance (M ohm) HV-LV HV-E LV-E		IS 2026 (Part 1) cl.16.6		
8.	a) Separate source Voltage withstand test voltage:		IS 2026 (Part 3) cl.10		

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	HV	28 kV for 60 secs.			
	LV	3 kV for 60 secs.			
9.	Induced over-voltage withstand test at double voltage and double frequency	100 Hz, 866 volts for 60 seconds.	IS 2026 (Part 3) cl.11		
10.	No load current at	GTP values	IS 2026 (Part 1) cl.16.5		
	90% volts				
	100% volts				
	112.5% volts				
11.	Neutral current measurement (A)	within 2% of the Full load current			
12.	Percentage Impedance at 75 deg.C (Please furnish calculation sheet)	GTP/TPNODL Specification	IS 2026 (Part 1) cl.16.4		
13.	Transformer oil test (Break down voltage)	>60KV per 2.5mm for one minute			
14.	Oil leakage test (0.35Kg/sq.cm)	Should Withstand for one hour	IS 1180 (Part 1) clause 21.5.1.3		
15.	Pressure test		IS 1180 (Part 1) cl. 21.5.1.2		
16.	Temperature Rise test (Over ambient temperature)	top oil – 35^0 top oil – 40^0	IS 2026 (Part 2) Clause no.4		
17.	Verification of Bushing clearance HV/LV (mm) a) Phase to Phase b) Phase to Earth	GTP			
18.	Paint Thickness test /Cross Adhesion Test	GTP/TPNODL Specification	IS1180 part 1 clause no. 21.4.d		
19.	Galvanization thickness test for 1. Arching horn , 2. Fasteners, 3. Earth strip	86 micron at any point	As per specs		
20.	Check if any joints in top cover gasket and terminal box gasket	Max two dove tail joints			
21.	Check drain valve and filter valve with flange arrangement on both sides.				
22.	Engraving on Name plate, Guarantee plate and Tank body	GTP	GTP		
23	Copy of calibration certificates of testing equipment be enclosed.	100% testing equipment			
24	Verification of tightening torque w.r.t torque chart.	GTP	Approved torque chart		
25	Raw Material sourcing and consumption documents verification in offered lot		As per acceptance clause in the specification		
26	CT- OEM Test reports if applicable	RTC			
27	Breather test reports for air pressure (Type test of OEM from NABL lab)				

28	Breather mounting fixing on conservator with Teflon tape				
29	CT mounting without touching bus bar				
30	Operation of Auxiliary contacts NONC operation test of various accessories like PRV, OTI, float switch etc. as applicable.				
31	Checking of CT terminal Ferruling S1 & S2 for all phases, in Auxiliary box.	As per Approved Drawing	As per Approved Drawing		

PURCHASER'S OFFICER BIDDER'S REPRESENTATIVE

DATE OF INSPECTION

POINTS TO BE SEEN / DIMENSIONS TO BE NOTED AT THE TIME OF DISMANTLING OF TRANSFORMERS:

S No.	PARTICULARS	As required in approved documents / Drawings	As observed	Remark/Deviations
1.	Details of the transformer dismantled for physical verification			
	a) Rating (kVA)			
	b) Sl. No.			
2.	Whether Hot dip galvanized Nuts and Bolts with one spring one plain washer provided for tightening the tank cover. Check galvanization thickness of 86 micron.			
3.	Details of Gasket used between top cover and tank Material			
	a) Thickness (mm)			
	b) Type of joints			
	c) Number of joints			
4.	Whether core is earthed properly with Cu strip (one end should be tightened in between the core laminations and other end bolted on core clamping channel).			
5.	Connections from winding to bushings (describe the manner in which it has been done)			
	a) HV			
	b) LV			
6.	Winding wire dia. and cross sectional area			
	a) HV			
	I) Dia. (mm)			
	II) Area (sq.mm)			

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	b) LV			
	I) L × W × Nos. of layer			
	II) Area (sq.mm)			
7.	Thickness of pressboard (s) provided between HV coils to cover the tie rods			
8.	Whether painted with oil and corrosion resistant paint			
	a) Inside the tank and conservator tank			
	b) Core clamping and core base channels			
	c) Tie rods			
	d) Core bolts			
9.	Whether engraving of Sl. No. and name of firm done on the bottom channel of core coil assembly.			
10.	Whether empire sleeves provided up to the end portion of HV winding jointing to bushing			
11	Whether flap on inner side of top cover provided to prevent direct falling of oil on core – coil assembly.			
12	Method of joints			
	a) Between HV coils			
	b) Between tap coils			
	c) For tap changer			
13	Diameter of copper wire, used for formation of delta (should not be less than 1.5 times the dia. Of conductor). (mm)			
14.	HV coils :			
	a) Inner dia. (mm)			
	b) Outer dia. (mm)			
15.	LV coils :			
	c) Inner dia. (mm)			
	d) Outer dia. (mm)			
16.	Core dia.			
17.	Core height including base channel and insulation in between (mm)			
18.	Clearances between			
	a) Core and LV (mm)			
	b) HV and LV (mm)			
	c) Phase to Phase of HV coils (mm)			
	d) Core coil assembly and tank body (mm)			
	I) Length wise			
	II) Width wise			
	e) Top of yoke and top cover (mm)			
	f) Top most live part of tap changer and top cover			
19.	Weight of core only (Kg.)			
20.	Weight of windings (Kg.)			
	a) LV			

Initiator	Udit Sankar Das.	HOD (Operation)	Sandip P.D.

	b) HV			
21.	Whether core laminations are in one piece, used for			
	a) Bottom yoke			
	b) Top yoke			
22.	Specific remarks regarding smoothness and rusting of core used.			
23.	Volume of oil filled (to be done once against the order)			
	In tank of the transformer			
	In conservator tank			
24.	Weight of transformer (inclusive of all fittings, accessories, oil etc. complete)			
25.	Inner dimensions of the tank			
	a) Length			
	b) Width			
	c) Height			
	I) LV side			
	II) HV side			
26.	Remarks, if any :			

Note: Please ensure that complete details have been filled in the Performa and no column has been left blank.

SIGNATURE OF PURCHASER'S
INSPECTING OFFICER
(Name and designation)

SIGNATURE OF BIDDER'S
REPRESENTATIVE
(Name an designation)

DATE OF INSPECTION: _____

ANNEXURE – III

SOURCE OF MATERIAL/PLACES OF MANUFACTURE, TESTING AND INSPECTION

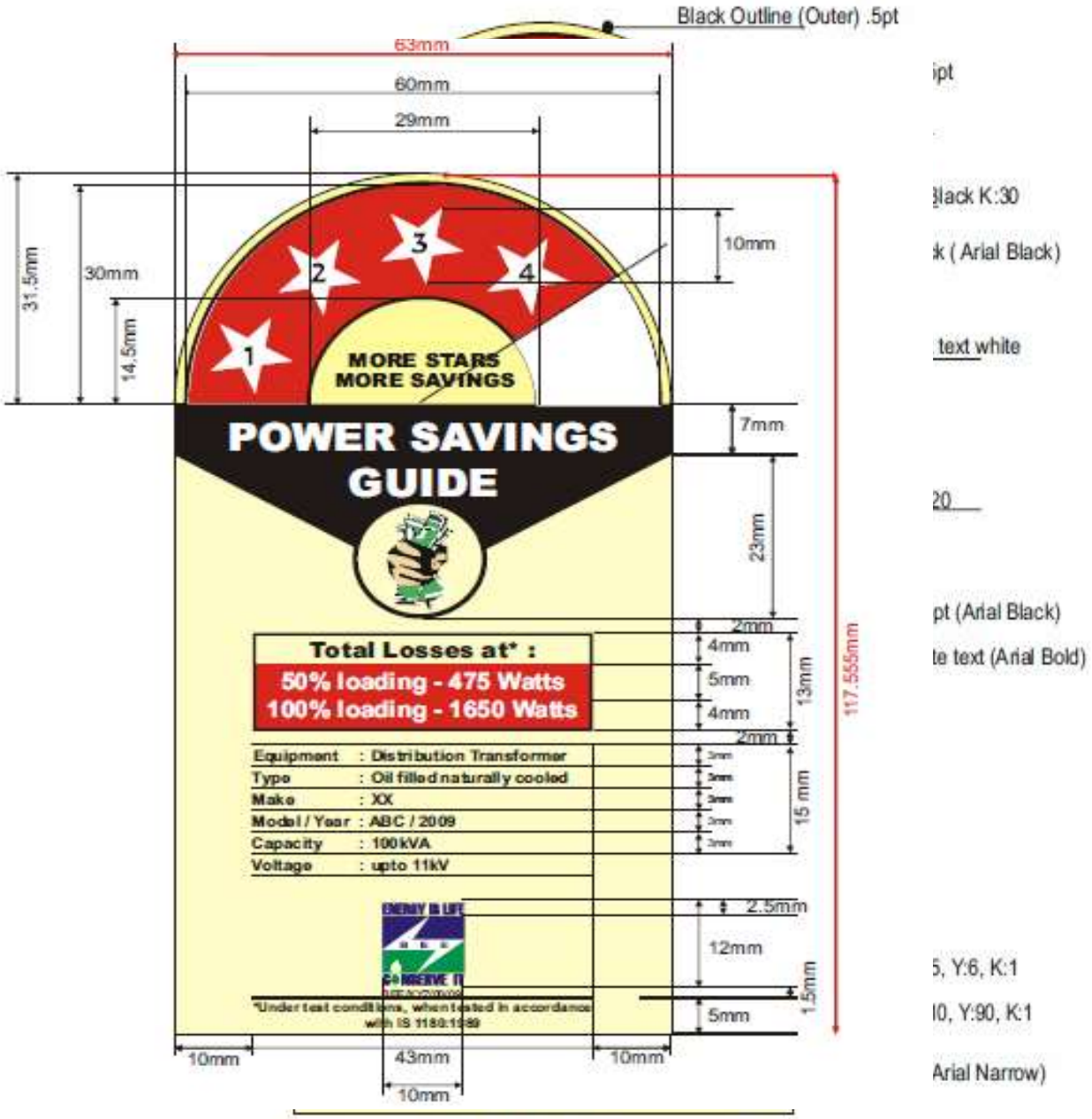
S No.	Item	Source of Material	Place of Manufacture	Place of testing and Inspection
1.	Laminations			
2.	Copper Conductor			
3.	Insulating winding wires			
4.	Oil			
5.	Press Boards			
6.	Kraft paper			
7.	MS Plates/Angles/Channels			
8.	Gaskets			
9.	Bushing HV/LV			
10.	Paints			
11.	Breather			

Initiator	Udit Sankar Das.	HOD (Operation)	Sandip P.D.

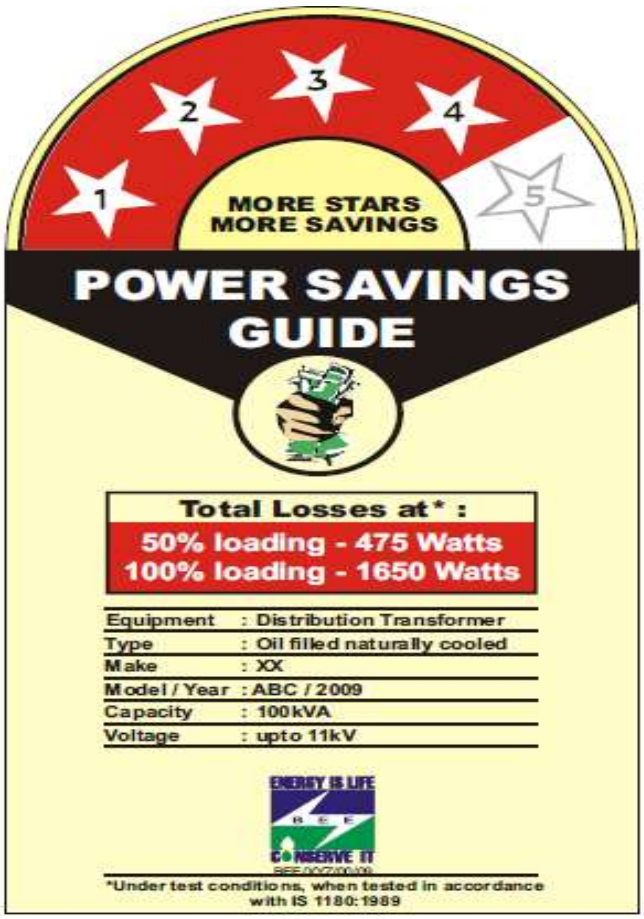
ANNEXURE- IV

Label shall be applied on the front base of the equipment near the name plate, so as to be prominently visible on the equipment.

I. The following colour scheme for the label, namely :



Initiator	Udit Sankar Das.	HOD (Operation)	Sandip PD.



ii. Detailed label specifications (size, colour scheme, font size, security features, if any, etc), content of the label (parameters displayed on the label) is provided below:

B. Technical Specification For 800A LT ACB

CONTENTS

1.0	**SCOPE**	This specification covers the technical requirements of design, engineering, manufacturing, testing at manufacturer's works, packaging, forwarding, supply and unloading at site/store and performance of LT Air Circuit Breaker – Microprocessor based with fault data recording (FDR) feature along with all accessories required for trouble free and efficient operation.
2.0	**APPLICABLE STANDARDS**	The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International standards / IEC and shall conform to the regulations of the local authorities. In case of any conflict in the below mentioned standards, TPNODL specification shall prevail.

S. No.	Standards	Title
1.	IS/IEC 60947-1 :2007	Low-voltage switchgear and control gear
2.	IS/IEC 60947-2 : 2003	Low-voltage Switchgear and Control gear, Part-2: Circuit Breakers
3.	IS/IEC 60947-5-1 : 2003	Low-voltage Switchgear and Control gear, Part 5-Control Circuit Devices and Switching Elements, Section 1-Electromechanical Control Circuit Devices
4.	IEC 60439-1 :1999	Low-voltage switchgear and control gear assemblies :Type-tested and partially type tested assemblies
5.	IS 8623-1 : 1993	Low-Voltage Switchgear and Control gear Assemblies : Requirements for Type-Tested and Partially Type-Tested Assemblies
6.	IS/IEC 60529 : 2001	Degree of Protection provided by enclosures
7.	IS 8623-2 :1993	Low-voltage Switchgear and Control gear Assemblies : Particular Requirements for Busbar Trunking Systems
8.	IEC 61439-6 :2012 (Edition 1.0)	Low-voltage switchgear and control gear assemblies: Busbar trunking systems (bus ways)
9.	IS 14772 : 2000	General Requirements for Enclosures for Accessories for Household and Similar Fixed Electrical Installations
10.	IEC 60664-1 :2007	Insulation coordination for equipment within low-voltage supply systems : Principles, requirements and tests
11.	IS 2551 : 1982	Danger notice plates

3.0 CLIMATIC CONDITIONS OF THE INSTALLATION

The material shall be suitable for following climatic conditions,

1. CLIMATIC CONDITIONS:

a)	Maximum Ambient Temperature	50 ^{o}C
b)	Maximum Daily Average Ambient Temperature	40 ^{o}C
c)	Minimum Ambient Temperature	2 ^{o}C
d)	Maximum Humidity	99.7 %
e)	Minimum Humidity	15 %
f)	Average Annual Rainfall	1800 mm
g)	Average Wind Speed prevailing in the area	200 km/hr.
h)	Average Thunderstorms prevailing in the area	70 days per annum
i)	Average dust storms prevailing in the area	20 days per annum
j)	Average number of rainy days per annum	160
k)	Maximum Altitude above sea level	1200 m
l)	Seismic Level	0.24g to 0.48g

The atmosphere is generally laden with mild acid and dust in suspension during the dry mor to fog in cold months. The design of equipment and accessories shall be suitable to withstar corresponding to an acceleration of 0.3 g.

4.0 GENERAL TECHNICAL REQUIREMENT

Sr. No.	Parameter	Unit	REQUIREMENT
1	Current Rating (AC)	A	400, 800,1250,1600 & 2000
2	Type of ACB		Outdoor, Fixed type, Manually Operated
3	Type of Release/Relay		Microprocessor based with Over Load (OL), Short Circuit (SC) & Earth Fault (EF)
4	Overload Release range		40 % to 120 %
5	Utilization Category		B
6	No. of Poles		Four- gang operated
7	Rated operational Voltage	V	415 ± 10%

		8	Rated Impulse withstand voltage (U imp)	kVp	8
		9	Rated ultimate short circuit breaking capacity (Icu)	kA	50 kA rms at 415V, 50Hz
		10	Rated service short circuit breaking capacity (Ics)		100% of Icu
		11	Rated Insulation voltage (Ui)		1100V ac
		12	Rated Short time withstand Capacity (Icw)	kAp	50 kAp for 1 sec.
		13	Rated Making Capacity (Icm)	kAp	105
		14	Breaker opening time	ms	40
		15	Breaker closing time	ms	60
		16	Material of Busbar		Aluminum (Aluminum shall be sourced from M/S Hindalco, M/S Nalco, M/s Sterlite only)
		17	Current Density of Busbar (max.)	A/mm²	1
		18	Max. permissible temperature		80^0C on terminals at an ambient temperature not exceeding 40^0C
		19	Min. Clearance between phases	mm	25.4 (after cable termination including LUGs)
		20	Min. Clearance between phase & earth	mm	19.4 (after cable termination including LUGs)
		21	Degree of Protection		IP 55 for Enclosure
					IP 55 or above for Relay cabinet
		22	Mechanical Operations		20000
		23	CT Secondary Current	A	5 or 1
		24	CT class		5P10
		25	Provision of shunt trip coil 240V AC for remote operation of breaker		To be provided by bidder

		26	'Push to trip' button, 'Close button' and 'relay reset button' on the front door		A 'push to trip' button , 'close' button and 'relay reset button' shall be provided on the front door with rain-shed covering the buttons of the ACB
		27	Relay		Relay design shall be suitable for auxiliary supply of range from 180 V to 350 V for trouble free operations
		28	Surge protection in relay		Relay and associated accessories should be provided with minimum 4.5 kV surge protection device
		29	Latching of fault indication LED		Fault indicating LEDs should latch/blink until it is reset manually
		30	FDR record with display		Last five tripping records should be stored in the memory and displayed on FIFO basis
		31	Auxiliary Contact(Breaker)		4 NO + 4 NC (Min)
		32	ACB should have peak load recording feature with reset		ACB should have peak load recording feature with reset for all three phases and neutral
		33	Separation between incomers and outgoing		The incomer and outgoing terminals should be separated by 125 mm(min.) & FRP sheet of 8 mm(min.) thickness should be properly fixed at both ends for separation between incomer & Outgoing
		34	Outgoing bus-bar		Outgoing bus-bar should be inverted L-shaped, straight extension from the enclosure should be 100mm(min.) till L bent and after L-bent 100mm(min.)
		35	Incoming bus-bar		Incoming bus-bar shall be angular shaped. The bent should be provided after 150mm (min.) straight extension from enclosure at an angle of 140-150 degrees for about 100 mm (min.).

		36	Bus-bar Insulation		Both incoming and outgoing bus-bars outside enclosure should be insulated with heat shrink tube up to bent of insulation level suitable for 1.1 kV
		37	Phase separator		Phase to phase and phase to neutral separators of FRP material having thickness minimum 3 mm should be provided
					(a) For incoming bus-bar the separator should be fixed with bolt at top and at bottom U-clip should be provided such that the separator can be lifted upwards during connections
					(b) For outgoing bus-bar the separator should be fixed with bolt at top and at bottom U-clip should be provided such that the separator can be lifted upwards during connections or alternate arrangement
		38	Orientation should be B-Y-R-N		Poles orientation should be B-Y-R-N as viewed left to right from back side
		39	CT secondary wires		CT secondary wires should not be accessible from outside
		40	Locking		Push to lock arrangement
		41	Voltage Indication		Outgoing voltage presence should be indicated by blinking LED
		42	Mechanism Interlocking		Mechanism interlocking to be provided for front door closing
		43	ACB door		ACB door hinges should be anti-theft
		44	Rated Control Circuit Voltage		240VAC
		45	Limits of voltage for the satisfactory operation ofthe following devices as % of nominal voltage (a) Trip Coil (b) Close Coil (c) Spring Charge Motor		(a) 70 to 120% (b) 85 to 120% (c) 85 to 120%

5.0 GENERAL CONSTRUCTIO-N

5.1 Enclosure

The ACB shall be housed in an enclosure made of 3mm thick sheet steel which shall be weather proof and vermin proof. The enclosure shall be provided with taper type construction & an overall canopy extension of not less than 100 mm in front side & 250 mm in back side to prevent accumulation of water. The enclosure shall be suitable for outdoor application with Degree of protection as IP55 and IP 55 & above for relay cabinet. The enclosure shall be provided with extended insulated Aluminum links outside & designed for use of 415V, 3-Phase 4 Wire, and 50Hz supply system. The pockets of Aluminum links shall be sealed properly to avoid ingress of moisture.

5.1.1 The enclosure shall have single door arrangement with hinges so that it is not possible to remove the door. However a separate lifting window type arrangement should be provided on the door for operation of ACB. It shall be so designed that when the front cover is opened, there should be no accessible space. The access should only be such that the maintenance of the ACB and its protective parts can be easily carried out.

5.1.2 One no. of 5 Pin 16mm Female Metal Shell Connector shall be provided in the enclosure to ease the operation of breaker locally from a safe distance. Technical requirement of the Metal Shall Connector shall be as follows:

Particulars	**Requirement**
Coupling	Threaded coupling
Shell Material	Zinc Alloy with Nickel Plated
Insert Material	Bakelite
Contact Material	Copper
Termination	Solder
Mating Cycle	500 Times
Temperature Range	-20oC to 85oC
Cable Diameter	7.5mm to 8.5mm
Degree of Protection	IP55
Working Voltage	250V
Rated Current	5A
Pin Configuration	1 – 240VAC from LT ACB 2 – ACB Open Command 3 – ACB Close Command 4 – Spare 5 – Spare

		5.1.3 A 'push to trip' & 'push to close' button and 'relay reset button' shall be provided on the front door of the ACB. All parts shall be manufactured in accordance with relevant IS/IEC. In case of equipment with conductive enclosures, means shall be provided if necessary to ensure electrical continuity between exposed conductive parts of the equipment and the metal sheathing of connecting conductors. The removable parts of the enclosure shall be firmly secured to the fixed parts by a device such that they cannot be accidently loosened or detached owing to the effects of operation of the equipment or vibrations. When an enclosure is so designed as to allow the covers to be opened without the use of tools, means shall be provided to prevent loss of the fastening devices. **5.1.4** For equipment operated by means of three push buttons, only the push button designated for the opening operation shall be RED or marked with symbol "O". Red color shall not be used for any other push-button. The colors of other push-buttons shall be in accordance with IEC-73. The bidder shall provide Provision of shunt trip coil 240V AC for remote operation of breaker. Two NO & two NC contacts to be provided for status confirmation from remote. **5.1.5** The Air Circuit Breaker shall have the provision to lock the operating mechanism in OFF position. One padlock at the front side shall be provided with common master key for all the circuit breakers. There shall be provision for Lock-out Tag-out (LOTO) on the front door. All the hardware used shall be hot dipped Galvanized as per IS 2629 (latest edition) with zinc coating. The enclosure should have mounting clamp at base on all four corners. Center to center hole distance shall be 400mm. **5.2 AIR CIRCUIT BREAKERS** The ACB shall be of fixed type, manually operated stored energy design. Switching ON & OFF of the ACBs shall be independent of speed of the operator. For safety of operator, the ACB shall be totally front shielded with an escutcheon cover, while maintaining the required IP55 it shall also prevent contact with live parts when the enclosure door is opened. There shall be no path or opening which allows incandescent particles to be discharged from the area of the manual operating means. **5.2.1** The Air Circuit Breaker shall be capable of rapid and smooth interruption of currents under all conditions, completely suppressing all undesirable phenomena even under the most severe and persistent short circuit conditions. **5.2.2** Main contacts shall have ample area and contacts pressure for carrying the rated current and the short time rated tripping current of the breakers without excessive temperature rise which may cause pitting or welding. Contacts shall be adjustable to allow for wear and shall be easily replaceable and shall have a

		minimum of moveable parts. It shall be designed such that no maintenance shall be required under normal condition of use. **5.2.3** The temperature rise and maximum temperature on any part of the circuit breaker, while in service under continuous full load conditions shall not exceed the permissible limits of temperature rise as specified in the IS-IEC 60947-2 for alternating current circuit breakers with bolted type tin plated bus bars, jumpers & riser ends. Gaskets shall be of a material which will not deteriorate under service conditions. Metallic compression steps shall be provided for compressible gasket. **5.2.4** The circuit breaker shall be suitable for rapid closing and tripping. The breaker opening and closing operations shall be obtained from compressed spring charging mechanism. The operating mechanism must be stored energy type with operation by means of chargeable springs fitted with anti-pumping facility. The springs charging shall be by means of geared motor and also manually by actuating the front lever. The operating mechanism shall be of the Open/Close/Open stored energy type. The mechanism for spring charging shall be motor operated with facility for manual charging when required. It shall be suitable for re-closing once. Spring operated mechanism shall be complete with opening spring, closing spring and all necessary accessories to make the mechanism a complete unit. Each mechanism shall be designed to have a continuous sequence of circuit breaker opening and closing operations, to be obtained by control switch. Operating mechanism shall be operated by local / remote electrical control. **5.2.5** The mechanical indicators on the front panel of the circuit breaker shall indicate 'ON','OFF' 'Spring Charged' and 'Spring Discharged' status conditions. It shall be possible to connect all auxiliary wiring from the front of the circuit breaker. The Air Circuit Breaker shall be with position and door interlocks, required no. of Auxiliary contacts, isolating contacts, closing and shunt releases, spring charge motor, safety interlocks, barriers, mechanical indicators, push buttons etc. required for safe and reliable operation. Mechanical indicators to show the 'close' or 'open' position of the contacts shall be provided. Operating handle shall be provided for charging the operating mechanism. All MS parts of breakers and ferrous parts shall be hot dip galvanized as per IS: 2629 (latest edition) with zinc platting. The material for spring shall be rust proof. The Air Circuit Breakers and their drawings shall have phase indications as Red, Yellow, Blue and Black. **5.2.6** The actuator of the equipment shall be insulated from the live parts of the ACB. If it is made of metal, it shall be capable of being satisfactorily connected to a protective conductor unless it is provided with additional reliable insulation. If it is made of or covered by insulating material, any internal metal part, which might become accessible in the event of insulation failure, shall also be insulated from

live parts for the rated insulation voltage. The direction of movement of the actuator shall comply with the requirements of IEC-447. The open and closed positions shall be ambiguously indicated by means of position indicating devices.

5.2.7 MICRO-PROCESSOR BASED RELEASE

The ACB shall have a microprocessor based release for Overload, Short Circuit & Earth Fault. Overload setting range shall be minimum adjustability from 40% to 120%. Time Multiplier Setting (TMS) range shall be 0.05 to 1Sec. However the same shall be preset at 80% of the rated current while calibrating during manufacturing. The CTs mounted for relay shall have secondary terminals inaccessible from front including tripping mechanism to avoid tampering of CTs. Separate indications mechanical/ Electrical for overload trip, earth fault trip and short circuit trip shall be provided. A Mechanical flag shall also be provided to ensure relay trip operation; this flag should not operate on manual trip. Besides this, temperature at cable terminals should not exceed 80^0C at 40^0C ambient on full rated current.

The time-current characteristics shall be of IDMT, with curve selection option and factory preset with normal inverse curve. For Short Circuit (SC) pick up range shall be 1.0 to 10 times the rated current settings and for Earth Fault (EF) pick up range shall be 0.05 to 1 times the rated current settings. The relay shall have self-diagnostic test feature. The relay shall be communicable over Modbus RS485.

The circuit breaker shall be provided with arc chutes which shall be design to permit rapid dispersion, cooling and extinction of arc. The arc chutes shall be of arc resistant material and ensure that the arc is positively extinguished within the arc chutes while clearing the rated breaking current.

5.2.8 PENDANT PUSH BUTTON STATION

Bidder shall supply 1 No. of Pendant type Push Button Station with necessary Push Buttons to Control the ACB, to extend supply the spring charge mechanism at the Pendant Station end and 5 Pin 16mm Male Metal Shell Connector at the ACB end. The Pendant Push Button Station shall be supplied with 1100V grade four core multi strand flexible copper conductor wires with HRPVC insulation and shall be flame retardant, vermin and rodent proof. The length of the Pendant Push Button Station Cable shall not be less than 5m and shall be enclosed with stainless flexiblehose.

5.3 TERMINALS AND CONNECTIONS

Current carrying parts shall have the necessary mechanical strength and current carrying capacity for their intended use. All parts of terminals which maintain contact and carry current shall be of metal having adequate mechanical strength. Standard sizes of bolts, screws, pipe and other fittings shall be used and number of sizes to be kept minimum. Terminals shall be so constructed that the conductors can be clamped between suitable surfaces without any significant damage either to

conductors or terminals. Terminals shall not allow the conductors to be displaced or be displaced themselves in a manner detrimental to the operation of equipment and the insulation voltage shall not be reduced below the rated values.
Terminals for connection to external conductors shall be readily accessible during installation. Fire retardant (Non-Bakelite) Phase barriers between phase bus bars shall be provided to avoid short circuit. Clamping screws and nuts shall not serve to fix any other component although they may hold the terminals in place or prevent them from turning.

5.3.1 All mechanism shall be made of such material as to prevent corrosion due to sticking of dust. The bolts, nuts and washers shall be of Stainless steel only to avoid corrosion and trouble free operation at the time of maintenance. All connections and contacts shall be of ample section and surfaces for carrying continuously the specified current without undue heating and shall be secured rigidly & locked in position. The manufacturer shall state the type (rigid/stranded/flexible), the minimum and the maximum cross-section of conductors for which the terminal is suitable and, if applicable, the number of conductors simultaneously connectable to the terminal.

5.3.2 The enclosure shall incorporate neutral link. Cable lugs shall be of crimping type and symmetrically arranged to facilitate easy cable connections. The cable lugs shall be of long barrel type with two hole arrangement (pls. refer ENG-C-17-03). Aluminum lugs with the provision of wire sizes as mentioned in the below table are required to be supplied with each ACB. Sizes of incoming and outgoing cables for phases and neutral shall be as given below. The cables shall be 1100V, single core and XLPE insulated. Single core cables shall be unarmored, whereas multi core cables shall be armored. All terminals, connectors, bus bars shall be designed in such a way that, the incoming & outgoing cables shall not develop any mechanical stress.

The provision of control wiring where ever shall be including spiral PVC conduits. All Busbar, connectors, terminals shall be suitable for the following arrangement of cable connection:

S.No.	Rated Phase Current (A)	Size of I/C cable (sq. mm) / phase	Size of O/G cable (sq. mm)
1	400	1RX1CX 630	4CX300
2	800	2RX1CX 630	4CX300
3	1250	2RX1CX 630	4CX300
4	1600	3RX1CX630	4CX300
5	2000	3RX1CX 630	4CX300
6	Neutral Busbar	Same as of Phase size	

5.4 BUS-BAR SUPPORT & INSULATION

be kept. Wire termination shall be made with solder less crimping type of tinned copper lugs which firmly grip the conductor. Insulation sleeves shall be provided at all the wire terminations. Engraved core identification plastic ferrules, marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wire and shall not fall off when the wire is disconnected from terminal blocks.

5.6 PROTECTIVE EARTHING

The fixed parts of a metal enclosure shall be electrically connected to the other exposed conductive parts of the equipment and connected to a terminal which enables them to be earthed or connected to a protective conductor. The exposed conductive parts (e.g. chassis, framework and fixed parts of metal enclosures) other than those which cannot constitute a danger shall be electrically interconnected and connected to a protective earth terminal for connection to an earth electrode or to an external protective conductor. Under no circumstances shall a removable metal part of the enclosure be insulated from the part carrying the earth terminal when the removable part is in place.

The ACB shall be provided with a Copper Earth Bus suitable for the rated short circuit current of the breaker. Two nos. studs shall be provided on side of boxes for body earthing of size M10 .One more stud shall be provided for neutral earthing of same size. The earth terminal /stud shall be of suitable size to accommodate the earth conductor and shall be corrosion protected. The earth terminal shall be identified by means of earthing sign marked in legible and indelible manner on or adjacent terminals. The earthing stud shall be welded from inside so as to prevent access to theft. The protective earth terminal shall be readily accessible and so placed that the connection of the equipment to the earth electrode or to the protective conductor is maintained when the cover or any other removable part is removed.

5.7 TERMINAL BLOCKS

Terminal blocks shall be 1100 V grade, 5 A rated, one piece molded, complete with insulated barriers, stud type, melamine housing brass terminals, washers, brass nuts, brass lock nuts and identification strips. Markings on the terminals strips shall correspond to wire number on the wiring diagrams. Not more than 2 wires shall be connected to any terminals.

All spare contacts and terminals of the circuit breaker shall be wired up to terminal blocks in the panel with distinguished ferrule numbers. Molding materials shall be self-extinguishing or resistant to flame propagation, substantially non hygroscopic and shall not carbonize when tested for tracking. The insulation between any terminal and frame work between adjacent terminals shall with stand test of 2kV RMS for one minute. The molding shall be mechanically robust to withstand handling while making terminations. Easily removable Protective

		transparent plastic covers for placing over the live parts of the terminal blocks shall be provided invariably. **5.8 PAINTING** The paint shall be applied on clean, dry surface under suitable atmospheric conditions by seven tank process followed by powder coating. The paint shall be RAL 7032 (Grey) with thickness of powder coating not less than 80 microns. Oil, grease, dirt and swart shall be thoroughly removed by emulsion cleaning.
6.0	**NAMEPLATE & MARKING**	All the components and operating devices like connectors, switches, motors, relays, coils, springs, etc., of the ACB shall be provided with durable and legible tag/label corresponding to the drawing. These tags/labels shall be mounted directly by the side of the respective equipment and/or accessories and shall not be hidden by the equipment wiring. The name plate containing all the technical parameters on enclosure of the ACB shall be embossed with "PROPERTY OF TPNODL, Balasore" along with the following parameters: a) PO number with date b) Code Number. c) Manufacturer's Name d) Sr. No e) Month & Year of Manufacture (MM/YYYY). f) Country Of manufacture. g) Danger Plate h) Utilization category. i) Rated Operation Voltage (Ue) j) Rated Frequency. k) Rated Service Short Circuit Breaking Capacity(Ics) l) Rated ultimate short circuit breaking capacity (Icu). m) Line & load terminals. n) Relevant Standards. o) IP class. p) Rated insulation Voltage (Ui) q) Guarantee Period The following markings to be provided by the bidder: a) Protective earth terminals b) Terminal markings Name plate/tags/labels shall be made of Aluminum anodized plate PV castings or permanent type and shall have white letters on black background. All equipment/ accessories shall be given standard abbreviation numbers with name of the device, corresponding to the ones shown in the panel internal wiring and breaker manual.

7.2 ACCEPTANCE TEST

Test	Reference Standard
Dimensional and visual checks	As per Tata Power-DDL specification
Clearance & Creepage distances	IEC 60947-1:2007
Dielectric Test on main and control circuit	IEC 60947-1: 2007
Mechanical Operation Tests	IEC 60947-2: 2016
Tests of auxiliary electrical devices	IEC 60947-1: 2007
Verification of correct wiring	IEC 60947-1: 2007
Calibration of Releases	IEC 60947-2: 2016
Temperature rise (once in RO)	IEC 60947-1:2007
Insulation Resistance	IEC 60947-2: 2016
High voltage power frequency withstand for power and control circuit	IEC 60947-1:2007
Short circuit making and breaking capabilities	IEC 60947-2:2016

7.3 ROUTINE TEST

Test	Reference Standard
Dimensional and visual checks	As per Tata Power-DDL specification
Verification of clearances	IEC 60947-1:2007
Dielectric Test on main and control circuit	IEC 60947-1: 2007
Mechanical Operation Tests	IEC 60947-2: 2016
Calibration of Releases	IEC 60947-2: 2016
High voltage power frequency withstand for power and control circuit	IEC 60947-1:2007

8.0	**TYPE TEST CERTIFICATES**	The bidder shall furnish the type test certificates of LT ACB for the tests as mentioned as above as per the corresponding standards. All the tests shall be conducted by CPRI/ERDA as per the relevant standards. Type test should have been conducted during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPNODL.

12.0	**PACKING**	Bidder shall ensure that all equipment covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit.
13.0	**TENDER SAMPLE**	Not Applicable.
14.0	**TRAINING**	The successful bidder shall be required to provide facility for in-plant training, at no extra cost to the purchaser's engineers to be nominated by the purchaser at his works, where the equipment offered shall be manufactured. The training shall cover familiarization with manufacturing and assembly techniques, procedures of installation, testing, commissioning, operation, maintenance and trouble shooting on the circuit breaker. Hands-on training shall utilize equipment identical to that being supplied to Employer. The schedule, location and detailed contents of each course will be finalized during Employer and Contractor discussions.
15.0	**QUALITY CONTROL**	The bidder shall submit with the offer Quality Assurance Plan (QAP) indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections. The bidder shall ensure that the material supplied is as per the technical specifications.
16.0	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant International / Indian standards/Technical Specification.
17.0	**MANUFACTURI-NG ACTIVITIES**	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality Assurance Plan submitted with the offer. This bar chart will have to be submitted along with GTP/Drawing approval.
18.0	**SPARES, ACCESSORIES AND TOOLS**	The bidder shall have to provide the list of spares, which may be required for ensuring the availability during the guaranteed availability period. The list of spares shall be part of scope of supply and accordingly the price thereof shall be quoted by the bidder (as per confirmation given by Plant Engineering) and shall be considered in the evaluation of the bids.

S. No.	SPARES	Units
(i)	CT	20 % of supply
(ii)	Relay	20 % of supply
(iii)	Trip Coil	20 % of supply
(iv)	ARC Chute	20 % of supply

Note: - The spares shall be included in PR only after furnishing requirement from user group.

19.0	**DRAWINGS AND DOCUMENTS**	Following documents shall be prepared based on TPNODL specifications and statutory requirements with Drawing including complete BOM and shall be submitted with the bid: a) Signed & stamped copy of clause-wise compliance on Technical Specification b) General description & drawing of the equipment c) Type test Certificates with drawings d) Experience List e) Drawing with complete BOM f) Signed & stamped copy of pre-bid queries g) Signed & stamped copy of No deviation certificate After the award of the contract, clause wise compliance on Technical Specification, complete equipment drawing with BOM, spare list, compliances on undertaking provided during technical evaluation shall be submitted for approval within the timelines mentioned in the contract. Category-A approval is mandatory from Plant Engineering for application of MDCC. Following Drawings/Documents shall be submitted after the award of the contract:

S. No	Description	For Approval	For Review Information	Final Submission
1	Technical Parameters	√		√
2	General Arrangement drawings	√		√
3	Dimensional drawings	√		√
4	Bill of Material	√		
5	Foundation Plan/ Mounting details	√		√
6	Manual/Catalogues/drawings for ACB		√	√
7	Installation Instructions		√	√
8	Instruction for Use		√	√
9	Transport/ Shipping dimension drawing		√	√
10	QA &QC Plan	√	√	√
11	Test Certificates	√	√	√

All the Documents and Drawings shall be in English Language.

20.0	**GUARANTEED TECHNICAL PARTICULARS**	Bidder to comply all above clauses as per specification

21.0	**SCHEDULE OF DEVIATIONS**	**(TO BE ENCLOSED WITH TECHNICAL BID)** All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications: We confirm that there are no deviations apart from detailed Below

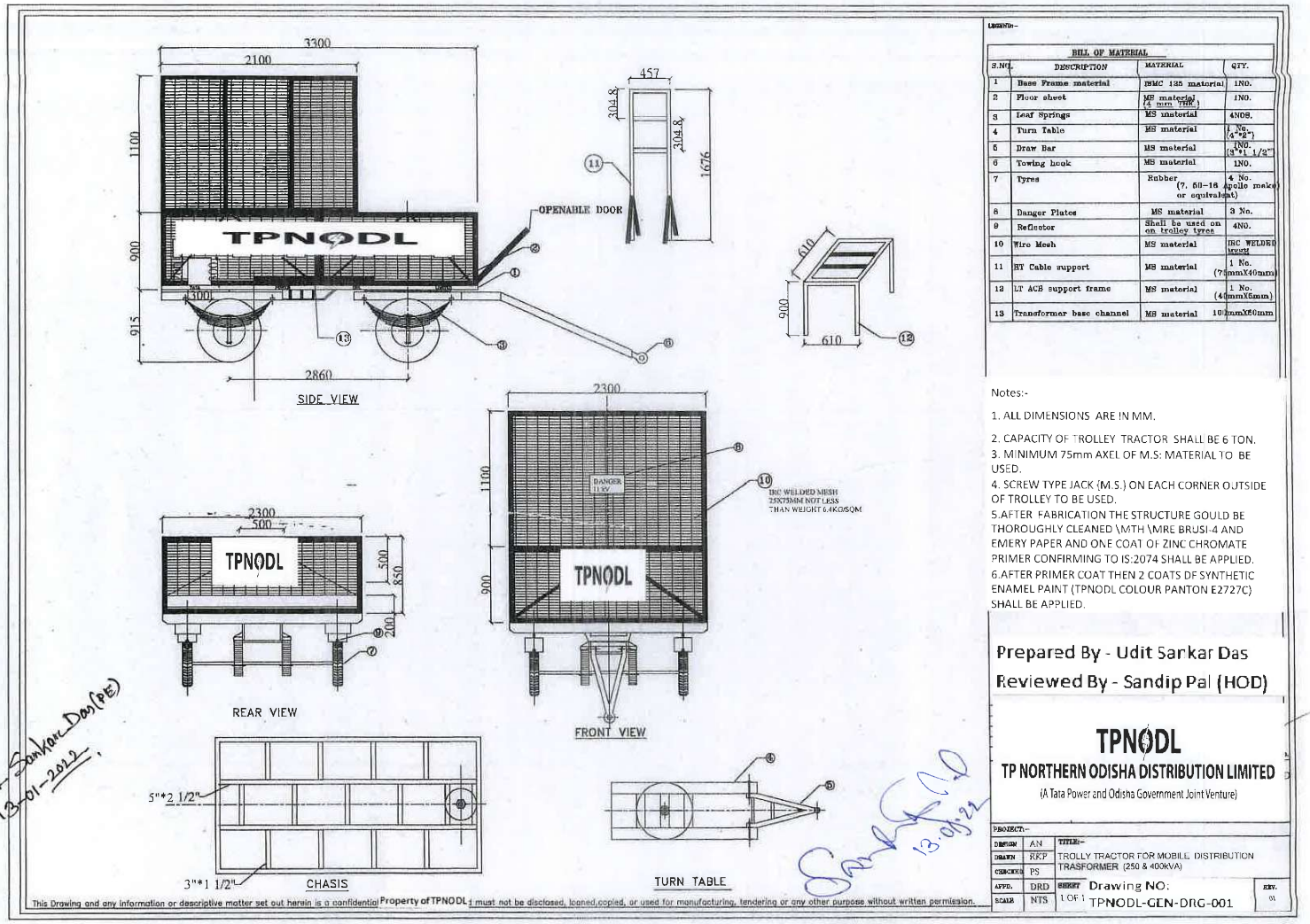
S.No.	Clause No.	Details of deviation with justifications

Seal of the Company: Signature:
Designation:

Annexure-1
Inspection Testing Plan

Test	Reference Standard	Requirement
Dimensional and visual checks	IEC 60947-2: 2016	As per TPNODL specification
Clearance & Creepage distances	IEC 60947-1:2007	As per table 13 & table 15
Dielectric Test on main and control circuit	IEC 60947-1: 2007	As per Ui & Ue of table 12A
Mechanical Operation Tests	IEC 60947-2: 2016	5 nos. each operation (Electrical/ Mechanical)
Tests of auxiliary electrical devices	IEC 60947-1: 2007	As per specification
Verification of correct wiring	IEC 60947-1: 2007	As per specification
Calibration of Releases	IEC 60947-2: 2016	(i) 1.5 In (should not trip in specified time limit) (ii) 1.3 In (should trip in specified time limit)
Temperature rise (once in RO)	IEC 60947-1:2007	80 deg. C Rise
Insulation Resistance	IEC 60947-2: 2016	Min. 1 M ohm at 500V DC
High voltage power frequency withstand for power and control circuit	IEC 60947-1:2007	30% of Uimp or 2Ui for 1sec.
Short circuit making and breaking capabilities	IEC 60947-2:2016	As per table 2 of 4.3.6.3

C. Technical Specification for Trolley of Mobile Distribution Transformer



CONTENTS

CONTENTS	
CLAUSE NO.	**DESCRIPTION**

CONTENTS

1.0 ORGANIZATIONAL VALUES

The Tata Group has always been a value driven organization. These values continue to direct the Group's growth and businesses. The six core Tata Values underpinning the way we do business are:

Integrity - We must conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.

Understanding - We must be caring, respectful, compassionate and humanitarian towards our colleagues and customers around the world and always work for the benefit of India.

Excellence - We must constantly strive to achieve the highest possible standards in our day to day work and in the quality of goods and services we provide.

Unity - We must work cohesively with our colleagues across the group and with our customers and partners around the world to build strong relationships based on tolerance, understanding and mutual co-operation.

Responsibility - We must continue to be responsible and sensitive to the countries, communities and environments in which we work, always ensuring that what comes from the people goes back to the people many times over.

Agility - We must work in a speedy and responsive manner and be proactive and innovative in our approach.

2.0 Tata Code of Conduct

The Business Associate and TPNODL shall be bound by the provisions/ clauses mentioned in Tata Code of Conduct (TCoC) in all their dealings with stakeholders. The Associate is advised to go through the TCoC document available as Annexure-J.

3.0 CONTRACT PARAMETERS

3.1 Issue/Award of Contract

TPNODL awards the contract to the Associate in writing in the form of Purchase Order (PO) or Rate Contract (RC), hereafter referred as Contract, through in any or all of following modes physical handover / post / e-mail / web document / fax with all the attachments/enclosures which shall be part of the contract document.

On receipt of the contract, the associate shall return to TPNODL copy of the contract document duly signed by legally authorized representative of associate, within two days of Effective Date of Contract for contracts having contract execution time less than 30 days and within five days for all other contracts.

Note- In case of RC though, further Release Orders (RO) shall be issued by TPNODL on RC rates and terms & Conditions as per the requirement of TPNODL.

3.2 Contract Commencement Date

The date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.

3.3 Contract Completion Date

The date of expiry of Guarantee Period shall be deemed as the Contract Completion Date.

3.4 Contract Period/Time

The period from Contract Commencement Date to Contract Completion Date shall be deemed as the Contract Period/Time.

3.5 Contract Execution Completion Date

The stipulated date for completing the supply as per schedule of quantities shall be deemed as the Contract Execution Completion Date.

3.6 Contract Price /Value

The total all-inclusive price/value mentioned in the PO/RC is the Contract Price/Value and is based on the quantity, unit rates and prices quoted and awarded and shall be subject to adjustment based on actual quantities supplied and accepted and certified by the authorized representative of the company unless otherwise specified in schedule of quantities or in contract documents.

3.7 Contract Document

The Contract Document shall mean and include but not limited to the following:

- NIT/Tender Enquiry, QR, Instruction to Bidders, Special Condition of Contract (SCC) of tender, GCC, Technical & Commercial Specifications including relevant annexure and attachments).
- Bids & Proposals Received from Associate including relevant annexure/attachments.
- RC/PO with agreed deviations from the tender/bid documents.
- All the Inspection and Test reports, Detailed Engineering Drawings.
- Material Dispatch Clearance Certificate (MDCC).
- Minutes of Meeting (MoM)

3.8 Contract Language

All documents, instructions, catalogues, brochures, pamphlets, design data, norms and calculations, drawings, operation, maintenance and safety manuals, reports, labels, on deliveries and any other data shall be in English Language.

The Contract documents and all correspondence between the TPNODL, Third Parties associated with the contract, and the Associate shall be in English language.
However, all signboards required indicating "Danger" and/or security at site and otherwise statutory required shall be in English, Hindi, and local languages.

3.9 Reverse Auction

TPNODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products / services being asked for in the tender. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached in Annexure F. The

bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form as mentioned in the Annexure J as a token of acceptance for the same.

4.0 SCOPE OF WORK

All the activities that are to be undertaken by the Associate to realize the contractual deliverables in completeness form Scope of Work. Following clauses list, but not limited to, major requirements of the scope of work.

The associate shall satisfy himself and undertake fully the technical/commercial requirements of items to be supplied as listed in the Schedule of Quantities together with the tests to be performed /test reports to be furnished before dispatch, arrangement of stage and final inspections during manufacturing as per terms and conditions of contract, technical parameters & delivery terms and conditions including transit insurance to be met in order to fully meet TPNODL's requirements.

Completeness: Any supplies and services which might have not been specifically mentioned in the Contract but are necessary for the scope mentioned in Special Terms & Conditions and/or completeness of the works at the highest possible level, including any royalties, license fees & compensation to be paid, whether incurred by the associates or by a third party for the work covered in the scope, regardless of when incurred, shall be supplied/provided by the associate without any extra cost and within the time schedule for efficient , smooth and satisfactory operation and maintenance of the works at the highest possible level under Indian conditions (but according to international standards for facility of this type), unless expressly excluded from the scope of supplies and services in this Contract.

TPNODL have the right, during the performance of the Contract, to change the scope and/or technical character of the Project and/or of the supplies and services stipulated in the Contract by submitting a request in writing to the Associate. The Associate shall, within fifteen days of receipt of such request from the TPNODL, provide Purchaser with a reasonably detailed estimate of the cost of the change outlined in the request.

In the event, TPNODL requests a change, the Contract price and time shall be adjusted upwards or downwards, as the case may be and shall be mutually agreed to. The associate shall not be entitled to any extension of time unless such changes adversely affect the time schedule.

The Associate shall not proceed with the changes as requested till adjustment of contract price and time schedule where so applicable in terms of or otherwise directed by the TPNODL.

4.1 Bid Evaluation- Commercial & Technical

TPNODL reserves the right to evaluate the bid on below parameters as per the requirement:

Commercial Evaluation: The bid shall be evaluated on the basis of Qualifying Requirement parameters and other commercial parameters as mentioned in tender.

Technical Evaluation: The bid shall be evaluated on the parameters and not limited to Bidder Experience, Bidder Performance with other utility/company, internal performance feedback, Technical Specification, General Technical Parameters (GTP), Layout, Drawings etc.

TPNODL reserves the right to carry out Factory Evaluation of Manufacturer along with the Visit to executed Sites for further evaluation to ascertain bidder's manufacturing capability, quality procedures & Performance of executed works.

5.0 PRICES/RATES/TAXES

Unless specified elsewhere in the contract document, the prices/rates are inclusive of cost of finished product for which MDCC will be issued by TPNODL, packaging and forwarding charges, freight and transit insurance charges covering loading at Associate's works, transportation to TPNODL store/site & unloading & delivery at TPNODL stores/TPNODL site, cost of documentation including all the relevant test certificates and other supportive documents to be furnished.

The Prices/Rates are inclusive of all taxes, levies, cess and duties, particularly Goods and Services Tax as applicable. All government levy / taxes shall be paid only when the invoice is submitted according to the relevant act.

The prices/rates shall remain firm till actual completion of entire supply of goods/material/equipment as per contract is achieved and shall remain valid till the completion of the contract.

The prices shall remain unchanged irrespective of TPNODL making changes in quantum in all or any of the schedules of items of contract.

5.1 Changes in Statutory Tax Structure

If rate of any or all of the statutory taxes and duties applicable to the contract changes, such changes shall be incorporated by default if the changes occur within the contract execution time and shall be applicable if the contract is executed by the Associate within the Contract Execution Time.

For execution of contracts beyond contract execution time, where the delay is not attributable to TPNODL no upward revision in tax /duties shall be considered irrespective of changes in the statutory tax structure either within the contract execution time or beyond. However, in such cases, benefits due to any downward revisions in statutory tax rates shall be passed on to TPNODL.

6.0 TERMS OF PAYMENT

On delivery of the materials in good condition and certification of acceptance by TPNODL official, Associate shall submit the Bills/Invoices in original in the name of "TPNODL" to invoice desk, complete with all required documents as under:

- Test Reports (4 sets).
- MDCC issued by TPNODL.
- Packing List.
- Drawing and Catalogue.
- Guarantee/Warrantee Card.
- Delivery Challan.
- O&M Manual.
- Copy of Order.
- Minutes of Meeting.

- E-Way challan (if applicable)

Bills/ invoices shall mention Supplier's GST Number. TPNODL will make 100% payment within 45 days of submission of the Bill/Invoice complete in all respects and along with all the requisite documents mentioned above, subject to condition that Associate has furnished the requisite Security-cum-Performance Guarantee as stipulated in the contract.

6.1 Quantity Variation

Payment will be made on the basis of actual quantity of supplies/actual measurement of works accepted by TPNODL and not on the basis of contract quantity.

6.2 Full and Final Payment

Full & Final Payment in all contracts shall be made subject to the associate submitting "No Demand Certificate" in the format as per Annexure-C.

7.0 MODE OF PAYMENT

Payment shall be made through crossed RTGS/ NEFT/ Online Net banking mode whichever of the two modes chosen by the Associate, in favour of Associate's Bank Account on TPNODL records, on whose name Contract has been issued. Those Associates opting for the RTGS mode shall submit the details of Bank Account and other details as per annexure G. Further, for any payments made, TPNODL is not responsible for any consequences/disputes Associate have among the owners channel partners, sub-Associates and all such dispute/concerns shall be settled solely by the Associate.

8.0 SECURITY CUM PERFORMANCE DEPOSIT

Associates shall submit within 21 days from the effective date of issue of PO/RC, Security Performance Bank Guarantee (SPBG) in the format as per Annexure B of this document from banks acceptable to TPNODL for:

(a) 5% of the PO value if purchase order value is more than Rs 5 Crores.
(b) 10% of the PO value if purchase order value is less than Rs 5 Crores.
(c) 5% of the RC value in case of Rate Contract. This shall remain valid till the Guarantee period plus one month.

In case, PBG will not submitted by BA within 21 days post awarding the contract, TPNODL will reserve the right to take any appropriate action. However, in case of non-submission of PBG till the date of first bill submission, the amounts towards PBG shall be retained by TPNODL from Bills.

The validity of PBG shall be Guarantee Period of contract, plus one month.

- For PO/RC values less than Rs. 5 lacs, Associate may request for deduction of amount equivalent to SPBG value from their first invoice. Such amount shall be withheld by TPNODL while processing the invoice and shall be released after completion of Guarantee Period plus one month.
- For PO/RC values less than Rs. 3 lacs, the clause (8.0) for Security cum Performance Bank Guarantee (SPBG) shall not be applicable.

- In case of RC (Rate Contract) after the expiry of RC validity, Associate shall have to submit SPBG. However, the Associate has the option to re-submit the SPBG as per actual RO

  (Release Order) value issued against the RC, valid for Guarantee Period plus one month. The Guarantee Period shall be considered as per the last RO issued against the said RC. The original SPBG as submitted against the RC shall be released on submission of the new SPBG to TPNODL. Alternatively, Associate may extend the validity of original SPBG only till the requisite period, i.e. Guarantee Period plus one month.

9.0 STATUTORY COMPLIANCE

9.1 Compliance to Various Acts

Associate should ensure adherence to all applicable laws, rules and regulation applicable under this contract from time to time. In case of violation any risk, costs etc shall be in associates account and keep TDPPL indemnified always till completion of contracts.

9.2 SA 8000

As TPNODL/ Tata Power is SA 8000 compliant, it expects its Associates to follow guidelines of SA 8000:2014 on the following aspects

1. Child Labour
2. Forced or Compulsory Labour
3. Health & Safety
4. Freedom of Association & Right to Collective Bargaining
5. Discrimination
6. Disciplinary Practices
7. Working Hours
8. Remuneration
9. Management System

9.3 Affirmative Action

TPNODL appreciate and welcome the engagement/employment of persons from SC/ST community or any other deprived section of society by their business associates.

Relaxation in Contract Clauses under Affirmative Action for SC/ ST Business Associates**

TPNODL believes that inclusive growth is the key to sustainable development, and to promote the same Policy on Affirmative Action for Scheduled Caste & Scheduled Tribe Communities has been adopted across the company.

Under the same pre-text, and to promote entrepreneurship among SC/ST community TPNODL has taken initiative by proposing relaxations in contract clauses as per below:

S. No	Initiative	for SC/ ST BA's	Guideline Document
1	Tender Fees	100% waiver for SC/ST community	All Open Tenders

2	Earnest Money Deposit	50 % relaxation of estimated EMD value	All limited and Open Tenders
3	Performance Bank Guarantee	50% relaxation in PBG for order value above 50 lacs else 25% relaxation	All limited and Open tenders
4	Turnover	25% relaxation in company turnover under qualifying requirement criteria	All Open Tenders

****Classification of BAs under SC/ST shall be governed under following guidelines:**

- Proprietorship/ Single Ownership Firm: Proprietor of the firm should be from SC/ST community. Governing document shall be duly audited balance Sheet for the last FY bearing the name of proprietor.
- Partnership Firm: Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed and audited balance sheet/ ITR for last FY.
- Private limited company: Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Note: Certification from SC/ST commission shall be required for deciding upon SC/ST status of a person.

9.4 MSME Development ACT 2006

Provisions for Firms falling in The Micro, Small and Medium Enterprise Development Act 2006:-

- Business Associate is requested to inform the TPNODL if they fall under provisions of The Micro, Small and Medium Enterprises Development Act, 2006 legislation, and provide necessary documents to TPNODL. The Associate also needs to mention the relevant details on their invoice/ bill.
- Business Associate shall submit the self-undertaking of registration in MSME category at the time of bidding as well as on an annual basis to TPNODL, enabling them to avail the consequent benefits, failing which TPNODL may take appropriate action against such defaults.
- Business Associates falling in MSME category can avail the following benefits-

  a. **Tender Fees:** To participate in the tender, MSMEs registered in the State of Odisha shall pay Rs.1,000/- including GST towards cost of tender paper.

  b. **Earnest Money Deposit (EMD):** EMD shall be exempted for MSME registered in the State of Odisha. However, Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract.

  c. **Qualification Requirement for Open Tenders:** Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria. For past experience, instead of relying on the volumes / value of earlier Supplies / Projects, assessment of the Bidder shall be done on the basis of feedback from Customers. Past performance experience at

Tata Power/ TPNODL and its Group Companies shall supersede feedback from other Customers.

d. **Reservation for MSME:** TPNODL reserve the rights to procure at least 20% of the total volume of the procurement from MSME registered in the State of Odisha (however, it shall not apply where goods/services are not available with the MSME), subject to matching L1 discovered prices and meeting technical specifications including quality requirements.

e. **Performance Bank Guarantees:** Performance Bank Guarantee for MSME registered in the State of Odisha shall be 25% of the value normally prescribed.

9.5 ISO 14001

The vendor to confirm whether their organization is ISO 14001 certified. If not, the Vendor must certify that the handling, use and disposal of their product/ by-products conform to practices consistent with sound environment management and local statues. The Vendor shall ensure that all the wastes are disposal in environmental friendly way with strict compliance to applicable laws including adherence to MoEF guidelines with respect to the disposal of batteries, lead waste, copper cables, ash, waste oil, e-waste etc. which shall be disposed through MoEF approved parties only. The vendor shall also dispose off the e-waste generated at the end of the product life cycle at its own costs and risk as per the MoEF guidelines/ Orders

10.0 QUALITY

10.1 Knowledge of Requirements

The Associate shall be deemed to have carefully examined and to have knowledge of the equipment, the general and other conditions, specifications, schedules, drawings, etc. forming part of the Contract and also to have satisfied himself as to the nature and character of the work to be executed and the type of the equipment and duties required including wherever necessary of the site conditions and relevant matters and details. Any information thus procured or otherwise obtained from TPNODL/Consultants shall not in any way relieve the Associate from his responsibility and executing the works in accordance with the terms of contract.

10.2 Material/Equipment/Works Quality

The items / works under the scope of the Associate shall be of the best quality and workmanship according to the latest engineering practice and shall be manufactured from materials of best quality considering strength and durability for their best performance and, in any case, in accordance with the specifications set forth in this Contract. All material shall be new. Substitution of specified material or variation from the process of fabrication/ construction/ manufacture may be permitted but only with the prior written approval of the TPNODL.

10.3 Adherence to Rules & Regulations

The Associate shall procure and/or fabricate/erect all materials and equipment in accordance with all requirements of Central and State enactment, rules and regulations governing such work in India and at site. This shall not be construed as relieving the Associate from complying with any requirement of TPNODL as enumerated in the Contract which may be more rigid than and not contrary to the above mentioned rules, nor providing such construction as may be required by the above mentioned rules and regulations. In case of variance of the Technical

Specification from the laws, ordinance, rules and regulations governing the work, the Associate shall immediately notify the same to the TPNODL. It is the sole responsibility of the Associate, however, to determine that such variance exists. Wherever required by rules and regulations, the Associate shall also obtain the statutory authorities' approval for the plant, machinery and equipment to be supplied by the Associate.

10.4 Specifications and Standards

The Associate shall follow all codes and standards referred in the Contract Document. Codes and standards of other may be followed by the Associate with the prior written approval of TPNODL, provided materials, supplies and equipment according to the standard are equal to or better than the corresponding standards specified in the Contract.

Brand names mentioned in the Contract documents are for the purpose of establishing the type and quality of products to be used. The Associate shall not change the brand name and qualities of the bought out items without the prior written approval of the TPNODL. All such products and equipment shall be used or installed in strict accordance with original manufacturer's recommendations, unless otherwise directed by the TPNODL. In any circumstances the codes, specimen and standards prescribed by any government agency should not be violated.

11.0 INSPECTION/PARTICIPATION

11.1 Right to Carry Out Inspection

TPNODL reserves the right to send its representatives for inspection or participation at various stages of contract execution listed below, applicable as per contract construction.

- During basic design and detail engineering of material/ Equipment carried out by Associate /Outsourced Agencies.
- During manufacturing stages of the product at Associate's/Associate's Outsourced Agency's Plant/Facility.
- During Pre-dispatch Inspection and Testing of finished/manufactured product at Associate's/Associate's outsourced Agency's Plant/Facility.
- During Installation & Commissioning Activities/Stages.
- Prior to Clearing of the completed installation for commissioning.
- Any other stage as find appropriate by TPNODL during contract execution time.

All inspections and participations shall be carried out by TPNODL giving written intimation to the Associate or receiving appropriate advance written inspection call from the Associate, unless otherwise specified elsewhere in the contract document.

MDCC request shall be submitted by BA to TPNODL at least 7 days before inspection date.

11.2 Facilitating Inspection

The Associate shall provide all opportunities and information to TPNODL's engineers to get acquainted with the technical know-how and the methods and practices adopted by the Associate in basic and detail engineering. The Associate shall provide documents, drawings, calculations etc. as may be required by TPNODL's Engineers.

The Associate shall provide free of charge office accommodation, office facilities, secretarial services, communication facilities, general and drawing office stationary, etc. as may be

reasonably required by the TPNODL's engineers. Similarly, facilities shall also be provided by Associate's outsource agencies/partners/authorized dealers (collectively termed as sub associates) if such basic and detail engineering activities are carried out in the design offices of sub-Associates.

The Associate shall be responsible for the safety of employees of TPNODL/Third Party Agency when they are at the Associate's /Associate's outsource agency's plant or facility for carrying out/witnessing inspection/testing. All statutory safety precautions as applicable shall be followed by the Associate during Inspection Testing. If TPNODL inspectors are not satisfied with the safety arrangements at the plant, TPNODL have the right to call off inspection till such time corrective action is taken by the Associate.
Before raising the call for pre-dispatch final inspection and testing, the Associate shall conduct all the tests—type tests, routine tests etc-as specified in the contract document and submit copies of the test certificates to TPNODL along with the inspection call, for scrutiny of TPNODL.

The Associate and TPNODL shall jointly document all the observations, comments and action points after completion of inspection and it shall be binding on the Associate to provide compliance on all the points requiring compliance and furnish the compliance report to the designated authority of TPNODL for receiving clearance for dispatch of materials

11.3 Third Party Nomination

TPNODL also may nominate a third party for the purpose of carrying out the inspection and such an agency shall be entitled to all the rights and privileges of TPNODL as far as conducting the inspection.

11.4 Waiver of Inspections

TPNODL on its own discretion shall chose to waive off any inspection and ask the Associate to submit all the test reports as applicable as per contract specifications, related to inspection and testing of the goods ordered for scrutiny and clearance for dispatch.

11.5 Incorrect Inspection Call

In case it is observed that the material offered for inspection is not ready at the time of TPNODL inspection visit rendering it as futile, all costs towards such inspection shall be recovered from the BA. Taxes as applicable on such recoveries shall be borne by the BA.

12.0 MDCC & DELIVERY OF MATERIALS

12.1 Material Dispatch Clearance Certificate

Associate shall deliver material/goods/equipment against Supply Contracts or Supply Part of Composite/Service Contracts only after receiving Material Dispatch Clearance Certificate (hereafter termed as MDCC) issued by designated authority of TPNODL. Material delivered at TPNODL stores or at project site without a valid MDCC issued by the designated official of TPNODL shall be rejected. MDCC shall be issued to associate furnishing compliance report on the action points documented during pre-dispatch inspection and testing at Associate's/ Sub Associate's plant/ facility. In case Pre-dispatch inspection is waived at the discretion of TPNODL, then, MDCC shall be issued on receiving all the test reports-routine& type-from the Associate and finding them in order.

The associate shall include and provide for securely protecting and packing the materials so as to avoid loss or damage during handling and transport by air, sea, rail and road or any other means.

All such packing shall allow to the extent possible for easy removal and checking at Site. The associate shall take special precautions to prevent rusting of steel and iron parts during transit by sea. Gas seals or other materials shall be utilized by the associate for protection against moisture during transit of all Plant and Equipment.

Each Equipment or parts of Equipment shall be tagged with reference to the assembly drawings and corresponding part numbers. Each bale or package shall contain a packing note quoting specifically the name of the associate, item description, quantity, item / package identification.

All packing cases, containers, packing and other similar materials shall be new and supplied free by the associate and it shall not be required to be returned to the associate.
Notwithstanding anything stated in this clause, the associate shall be entirely responsible for loss, damage or depreciation or deterioration to the materials and supplies due to faulty and/or insecure packing or otherwise during transportation to the Site until otherwise provided herein.

In case of the consignments dispatched by road, the associate shall ensure that it or its subcontractors:

i) Identify and obtain the correct type of trucks/trailers, keeping in view the nature of consignments to be dispatched.

ii) Take such actions as may be necessary to avoid all possible chances of damages during transit and to ensure that all packages are firmly secured.

Timelines for inspection and MDCC is as below:

S. No.	Inspection	MDCC issuance time including Inspection time (max.)
1	Outside Odisha	12 days
2	Within Odisha	5 days
3	Waiver*	3 working days

* Associate is expected to raise the inspection call assuming that Inspection shall be carried out by TPNODL. The decision for waiver of inspection shall be on sole discretion of TPNODL.

12.2 Right to Rejection on Receipt

Goods/Material/Equipment delivered in condition physically damaged & incomplete as a product ordered, or not packed and transported as per the terms and conditions of the contract is liable to be rejected. Such item shall be lifted back by Associates within 15 days from receipt of rejection note from TPNODL and have to supply back the material within next 30 days or within the timeframe mutually decided by Associate and TPNODL.

If delivery of the material is beyond the agreed time, Liquidated damage clause, mentioned in this GCC separately shall be applicable; but the period for levy of LD shall be considered as per the original delivery schedule and not from the agreed timelines for material rectification.

12.3 Consignee

Unless otherwise specified in the Contract Document, Materials/Goods/Equipment shall be consigned to “Stores-In-Charge”, TPNODL, Balasore/ Jajpur/ others.

12.4 Submission of mandatory documents on Delivery

Following documents shall be mandatorily submitted by BA along with supply of material to TPNODL stores/site:

S. No.	Documents	Requisite
1	Invoice copy in original	With all consignments
2	LR copy	Wherever required
3	Packing list	With all consignments
4	MDCC	With all consignments
5	Purchase order / Release order	Signed copy
6	Test certificates	With all consignments
7	Inspection/JVR report	In case pre-dispatch inspection is conducted
8	Device data in CD as per template for metering items	Wherever applicable

12.5 Dispatch and Delivery Instructions

S. No.	Instructions
1	Purchase order/ Release order no. shall be mentioned on invoice and on material
2	TPNODL material code and material description shall be mentioned in invoice and on material.
3	“Property of TPNODL” shall be embossed on material.
4	The material shall be properly sealed and packed in standard packing as per purchase order terms & conditions.
5	The weight and quantity of material shall be mentioned wherever applicable
6	The material supplied shall be co-related with the packing list.
7	The name plate detail on equipment shall include Material code, Material description, specification detail of material [as applicable], Serial No. Year of manufacturing, PO/RO no. and date, “PROPERTY OF TPNODL”, Guarantee period and Associate’s name.
8	In case of manual unloading, supplier / transporter shall deploy sufficient Labour for unloading the material at TPNODL central store. For heavy item(s), crane shall be arrange by the BA. However, in case, BA is not able to arrange the Crane, then TPNODL reserve the rights to hire the crane from market/ within internal resources and all expenditure/ unloading shall be recovered from BA.
9	The driver should have valid License and one helper in truck. All the documents of truck like registration papers, PUC etc. should be available in Truck.
10	BA representative should accompany the material and get it unloaded / stacked in his presence wherever possible.

13.0 GUARANTEE

13.1 Guarantee of Performance

Associates shall stand guarantee that the equipment and material supplied under the contract is free from design, manufacturing, material, construction, erection & installation and workmanship & quality defects and is capable of its due, rated and intended quality

performance, as an integrated product delivered under the contract, for a specific period termed as Guarantee Period(as elaborated elsewhere in this clause). The Associate should also guarantee that the equipment/material is new and unused except for the usage required for the tests and checks required as part of quality assurance.

13.2 Guarantee Period

The Guarantee Period will be equipment/service/work specific and shall be as specified in the Standard Specifications of TPNODL for the equipment/material/service/work and where standard specifications are not part of contract documents or guarantee period is not specified in the standard specifications,, the guarantee period shall be as per the Special Terms and Conditions of the Contract. In case of no mention of the guarantee period in standard specifications or SCC Guarantee Period will be 12 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.

13.3 Failure in Guarantee Period (GP)

If the equipment and material supplied under the contract fails to perform its due, rated & intended quality performance, during the Guarantee period, the associate is liable to undertake repair/rectify/replace the equipment and material supplied within time frame specified in the SCC or elsewhere in the contract documents at associate's cost to make the equipment and material supplied/service or work rendered under the contract of performing its due, rated and intended quality performance. If Associate fails to repair/rectify/replace the equipment or material supplied rendered under the contract, failed in Guarantee Period, TPNODL will be at liberty to get the same done at Associate's risks and costs and recover all such expenses plus the TPNODL's own charges (@ 20% of expenses incurred), from the Associate or from the "Security cum Performance Deposit" as the case may be.

If during the Warranty/ Guarantee period some parts of the supplies are replaced owing to the defects/ damages under the Warranty, the Warranty period for such replaced parts shall be until the expiry of twelve months from the date of such replacement or renewal or until the end of original Guarantee period, whichever is later.

Any repairs during the Guarantee Period shall be carried out by the Associate within 30 days of reporting the issue to Associate by TPNODL. However, if replacement of the Equipment is required, Associate shall notify the same to TPNODL within 7 days of reporting the issue by TPNODL. Thereafter, the total time for supply of new equipment/ material shall be equal to the original delivery period of that equipment/ material as specified in the Contract. In case the Associate is not able to rectify/ replace the faulty equipment/ material within the stipulated timelines as mentioned above, penalty shall be levied as per the Liquidated Damages clause mentioned in this document. The penalty amount shall be recovered from the payment due to the vendor or by encashment of the SPBG as the case may be.

13.4 Cost of repairs on failure in GP

The cost of repairs/rectification/replacement, required transportation, site inspection /mobilization/dismantling and re-installation costs as applicable, to be borne by Associate. The Associate has to ensure that the interruption in the usage of intended purpose of the equipment is minimized to the maximum extent In lieu of the time taken for repairs/rectification/replacement.

13.5 Guarantee period for Goods Outsourced

If the Associate outsources partly equipment/materials/services from third party as mutually agreed upon at the pre award stage of contract, TPNODL shall have the benefit of any additional guarantee period if provided by the third party for the part supplied/executed by them.

13.6 Latent Defect

Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Company.

13.7 Support beyond the Guarantee Period

The Associate shall ensure availability of spares and necessary support for a period of atleast 10 years post completion of guarantee period of equipment supplied against the contract.

14.0 LIQUIDATED DAMAGES

a) For supplies which are of standalone use, multiple in quantities and having a single final delivery schedule, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPNODL, as described below:

   For delay of each week and part thereof from the delivery schedule specified in the contract, 1% of contract value corresponding to undelivered quantity, provided full quantity is supplied within 130% of the original contract time. If full contractual quantity is not delivered within 130% of contract time for delivery, TPNODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value.

b) For Supplies having phased delivery schedule as per contract terms, standalone use and multiple in quantities, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPNODL, as described below:

For the purpose of calculating and applying LD, each delivery lot shall be considered separately. For delay of each week and part thereof, from the delivery schedule specified for the lot, 1% of the contract value corresponding to the undelivered quantity of the lot subject to a maximum of 10% of the total contract value of the subject lot. However, if full contractual quantity is not delivered within 130% of contract time for delivery, TPNODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value. Deduction of LD shall be on landed cost i.e contract value inclusive of taxes and in pursuant statutory compliance GST would be applicable at the stipulated rate and the same shall be borne by Business Associate. In case of LD deduction, a GST invoice shall be issued by TPNODL as a proof of deduction/ recovery.

14.1 LD Waiver Request

Any request of LD waiver shall be submitted within thirty (30) days of deducting LD. Request submitted beyond the timeline shall not be entertained.

15.0 UNLAWFUL ACTIVITIES

The Associate shall have to ensure that none of its employees are engaged in any unlawful activities (whether covered under the scope of the present GCC or not) subversive of the

TPNODL's interest failing which appropriate action (legal or otherwise) may be taken against the Associate by the TPNODL, in accordance with the terms of the present GCC.

16.0 CONFIDENTIALITY

Associate and its employees or representatives thereof shall strictly maintain the confidentiality of various information they come across while executing the contract as detailed below.

16.1 Documents

All maps, plans, drawings, specifications, schemes and other documents or information related to the Contract/Project and the subject matter contained therein and all other information given to the Associate by the TPNODL in connection with the performance of the contract shall be held confidential by the Associate and shall remain the property of the TPNODL and shall not be used or disclosed to third parties by the Associate for any purpose other than for which they have been supplied or prepared. The Associate may disclose to third parties, upon execution of confidentiality agreements, such part of the drawings, specifications or information if such disclosure is necessary for the performance of the Work provided such third parties agree in writing to keep such information confidential to the same extent and degree as provided herein, for the benefit of the TPNODL.

16.2 Geographical Data

Maps, layouts and photographs of the unit/plant including its surrounding regions showing vital installation for national security of country or those of TPNODL shall not be published or disclosed to the third parties or taken out of the country without prior written approval of the TPNODL and upon execution of confidentiality agreements satisfactory to the TPNODL with such third parties prior to disclosure.

16.3 Associate's Processes

Title to secret processes if any developed by the Associate on an exclusive basis and employed in the design of the equipment shall remain with the Associate. TPNODL shall hold in confidence such processes and shall not disclose such processes to the third parties without prior approval of the Associate and execution by such third parties of secrecy agreements satisfactory to the Associate prior to disclosure. Upon completion of contract, such processes shall become the property of the TPNODL. Title to technical specifications, drawings, flow sheets, norms, calculations, diagrams, interpretations of test results, schematics, layouts and such other information, which the Associate has supplied to the TPNODL under the Contract shall be passed on to the TPNODL. The TPNODL shall have the right to use these for construction, erection, start-up, Trial Run, operation, maintenance, modifications and/or expansion of the works including for the manufacture of spare parts.

16.4 Exclusions

The provision of Clauses 16.1 to 16.3 shall not apply to information:

- Which at the time of disclosure are in the public domain which later on become part of public domain through no fault of the party concerned, or
- Which were in the possession of the party concerned prior to disclosure to him by the other party, or
- Which were received by the party concerned after the time of disclosure without restriction on disclosure or use, from a third party who did not acquire such information

directly or indirectly from the other party or has no obligation of confidentiality for such information.

16.5 Violation

In case of violation of this clause, the Associate is liable to pay compensation and damages as may be determined by the competent authority of TPNODL.

17.0 INTELLECTUAL PROPERTY RIGHTS

If, in the course of performance of its functions and duties as envisaged by the scope of the present GCC, the Associate acquires or develops, any unique knowledge or information which would be covered, or, is likely to be covered within the definition of a trademark, copyright, patent, business secret, geographical indication or any other form of intellectual property right, it shall be obliged, under the terms of this present GCC, to share such knowledge or information with the TPNODL. All rights, with respect to, or arising from such intellectual property, as afore mentioned, shall solely vest in TPNODL.
Moreover, the Associate undertakes not to breach any intellectual property right vesting in a third party/parties, whether by breach of statutory provision, passing off, or otherwise. In the event of any such breach, the Associate shall be wholly liable to compensate, indemnify or make good any loss suffered by such third party/parties, or any compensation/damages arising from any legal proceeding/s, or otherwise. No liability of TPNODL shall arise in this respect, and any costs, damages, expenses, compensation payable by TPNODL in this regard to a third party/parties, arising from a legal proceeding/s or otherwise, shall be recoverable from the Associate.

18.0 INDEMNITY

The Associate shall at all times indemnify, keep indemnified and hold harmless the TPNODL and its officers, directors, employees, affiliates, agents, successors and assigns against all actions, claims, demands, costs, charges and expenses arising from or incurred by reason of any infringement of patent, trade mark, registered design, copy rights and/or industrial property rights by manufacture, sale or use of the equipment supplied by the Associate whether or not the TPNODL is held liable for by any court judgement. In this connection, the TPNODL shall pass on all claims made against him to the Associate for settlement.

The Associate assumes responsibility for and shall indemnify and save harmless the TPNODL from all liability, claims, costs, expenses, taxes and assessments including penalties, punitive damages, attorney's fees and court costs which are or may be required to be paid by the TPNODL and its officers, directors, employees, affiliates, agents, successors and assigns arising from any breach of the Associate's obligations under the Contract or for which the Associate has assumed responsibilities under the Contract including those imposed under any local or national law or laws, or in respect to all salaries, wages or other compensation for all persons employed by the Associate or his Sub-Associates or suppliers in connection with the performance of any work covered by the Contract. The Associate shall execute, deliver and shall cause his Sub-Associate and suppliers to execute and deliver, such other further instruments and to comply with all the requirements of such laws and regulation as may be necessary there under to conform and effectuate the Contract and to protect the TPNODL.

The TPNODL shall not be held responsible for any accident or damages incurred or claims arising, due to the Associate's error there from prior to completion of work. The Associate shall be liable for such accidents and after completion of work for such accidents as the case may be

due to negligence on his part to carry out Work in accordance with Indian laws and regulations and the specifications set forth herein.

19.0 LIABILITY & LIMITATIONS

19.1 Liability

Except for any specific liability which may be identified in the Contract and which may be payable hereunder, Associate shall not be liable for any special, incidental, indirect, or consequential Damages or any loss of business Contracts, revenues or other financial loss (or equivalents thereof no matter how claimed, computed or characterized) arising out of or in connection with the Performance of the Work or supply of Goods ***unless caused by Associate's negligence, willful misconduct or breach of contract.***

If the Associate is a joint venture or consortium, all concerned parties shall be jointly and severally bound to the TPNODL for the fulfillment of the provisions of the Contract. The consortium or the joint venture shall designate one party as their leader, who will be the coordinator between the parties and TPNODL. The constituents & leader of the consortium or joint venture shall not be changed without the prior consent of TPNODL.

TPNODL shall have no liability or any special, incidental, indirect or consequential Damages for any loss of Business Contracts, revenues or other financial loss arising out of this Contract.

19.2 Limitation of Liability

The total liability of Associate against any contract shall be limited to the Total All Inclusive Contract Value.

20.0 FORCE MAJEURE

Force Majeure applies if the performance by either Party ("the Affected Party") of its obligations under Contract is materially and adversely affected.

"Force Majeure" shall mean any event or circumstance or combination of events or circumstances referred below and their consequences that wholly or partly prevents or unavoidably delays any Party in the performance of its obligations under this Agreement, but only and to the extent that such events and circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided even if the Affected Party had taken reasonable care:

- Act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, embargo, blockade, revolution, riot, bombs, religious strife or civil commotion, etc. ▪ Politically motivated sabotage, or terrorism, etc.
- Action or Act of Government or Governmental agency for which remedy is beyond the control of the affected parties. ▪ Any act of God.

Note: Causes like power breakdown/ shortages/fire/strikes, accidents etc do not fall under Force Majeure.

Time being the essence of the Contract, if either party is prevented from the performance of its obligations in whole or in part due to an event of Force Majeure, then provided Notice of happening of any event by the Affected Party is given to the other party within seven (7) days from the date of occurrence of such event, which DIRECTLY has impact on works and submitted details and quantum of resulting effect, but at the same time had made all possible efforts to mitigate and overcome effects thereof, the Affected Party's performance under this

Contract shall be suspended until such event ceases and the Scheduled Completion shall be delayed accordingly.

If Force Majeure event(s) continue for a period of more than three months, the parties shall hold consultation to discuss the further course of action.

Neither party shall be considered to be in default or in breach of its obligation under the Contract to the extent that performance of such obligation by either party is prevented by any circumstances of Force Majeure which arise after effective date of Contract.

Neither party can claim any compensation from the other party on account of Force Majeure.

21.0 SUSPENSION OF CONTRACT

21.1 Suspension for Convenience

TPNODL may, at any time and at its sole option, suspend execution of all or any portions of the schedule of items of contract to be supplied/work to executed by Associate under the contract by providing to the Associate atleast two business days written notice for contracts having contract completion period less than sixty days and atleast seven business days' notice for all other contracts.

Upon receipt of any such notice, the Associate shall respond as follows as applicable as per contract construction.

- Immediately discontinue further supply of material/goods specified in the suspension notice for supply contracts
- Immediately discontinue further service/work and supply of materials of those services/materials/work specified in the suspension notice for service /composite contract
- Promptly make every reasonable effort to obtain suspension, upon terms satisfactory to TPNODL, of all orders, outsourcing arrangements, and rental Contracts to the extent that they relate to performance of the portion of Work suspended by the notice.
- Protect and maintain the portion of the service/Work already completed, including the portion of the Work suspended hereunder, unless otherwise specifically stated in the notice.
- Continue delivering/carrying out the supply/service/work items as per contract conditions, which do not fall under purview of the suspension notice.

On receipt of resumption notice from TPNODL, the Associate shall resume execution of contract as specified in the resumption notice, within the time frame specified in the resumption notice.

21.2 Suspension for Breach of Contract conditions.

TPNODL shall suspend execution of whole/or part thereof the contract till such time Associate complies with the conditions stipulated under section clause 22.1 for breach/default of contract conditions.

21.3 Compensation in lieu of Suspension

If the suspension of the contract in whole or in part is for convenience of TPNODL and not due to any breach of contract conditions by the associate, TPNODL at its discretion shall consider compensating all reasonable additional costs incurred by Associate in lieu of suspension of

whole or part of contract, on representation of the Associate providing justified estimates of such additional costs and such estimates are found acceptable and approved by competent authority of TPNODL.

If the suspension of contract in whole or part thereof is due to breach of contract conditions (refer clause 22.1) by the Associate, Associate shall not be entitled for any compensation for any cost incurred in lieu of suspension of whole or part of contract and also shall be liable for compensating all the losses arising to TPNODL in lieu of suspension of contract. Resumption notice shall be subject to the Associate taking corrective action for the breach of contract conditions within the time frame and as per the terms specified in the suspension notice.

22 TERMINATION OF CONTRACT

22.1 Termination for Default/Breach of Contract

The contract / PO /RC shall be subject to termination by TPNODL in case of breach of the contract by the Associate which shall include but not be limited to the following:

a. Withdrawal or intimation by the Associate of its intent to withdraw or surrender the execution / completion of the contracted work /PO or failure in ensuring adherence to any delivery schedules, in deviation of the contract/PO.

b. Refusal or neglect on the part of the Associate to supply material/equipment of quantity or quality as specified by TPNODL and within the timeframe as specified in the contract document or refusal or neglect to execute the services/work in terms of the agreed standards of quantity or quality and/or within the timeframe specified in the contract/PO.

c. Failure in any respect to perform any portion of the Work contracted with promptness, diligence, or in accordance with the terms of the contract.

d. Failure to furnish guarantees as specified and /or failure to comply with the terms thereof.

e. Failure to furnish such relevant documents or information within the time specified which may be necessary for due execution / completion of the works and documentation.

f. Liquidation, bankruptcy either voluntary or involuntary OR entering into any composition or compromise with its creditors, or Insolvency.

g. In case any reasonable information has been received by TPNODL that Associate has adopted/ or attempted to adopt any unethical conduct, action in award of the contract /PO or at any time thereafter.

h. Failure to comply with applicable statutory provisions as contained in the contract or failure to comply with the applicable laws.

i. Failure to comply with safety regulations/clauses stipulated in the contract or as may be generally instructed by TPNODL.

If the default or breach as specified under clause 22 (except sub clause g thereof) be committed by the associate for the first time, TPNODL shall issue, along the with notice of default or breach, a warning notice instructing the associate to take remedial/corrective action within the time frame stipulated in the warning notice and not to repeat the same in future. The timeframe for corrective action by the associate shall be specific to the nature of breach of contract and the same shall not be objected to by the Associate. If the Associate fails to comply with the instructions in the warning notice or in taking corrective action to the satisfaction of

TPNODL then TPNODL may terminate the entire or part of contract at its discretion by issuing termination notice without incurring any liability on this ground.

In case the contract is terminated for any breach of the nature specified in clause 22 g stated above, TPNODL shall have the right to terminate all the contracts TPNODL is having with the Associate by issuing termination notice which shall be without prejudice to the other rights of TPNODL available to it under law.
Without prejudice to its right to terminate for breach of contract, TPNODL may, without assigning any reason, terminate the Contract in whole or in part at any time at its discretion while the contract is in force by serving a written notice of two weeks to the Associate.

In the event of TPNODL having proceeded with termination of the contract the associate shall comply and proceed further in the following manner:

a) Associate shall discontinue the supply, on the expiry of the said period of two weeks.

b) Associate shall ensure that no further steps are being taken towards discharge of the obligations, terms and conditions as contained in the contract/PO. This shall include initiation of actions not limited to discontinuation of other allied and associated arrangements which the associate might have entered into with third parties for due discharge of its obligations under the contract with TPNODL.

c) The Associate shall perform thereafter such tasks as may be necessary to preserve and protect the terminated portion of the material/service/work in progress and the materials and equipment at TPNODL sites or in transit thereto. However the associate shall continue to fulfill its contractual obligations with regard to the part of contract not terminated.

d) It shall be open for TPNODL to conduct a joint assessment with the associate of the material, supplies, equipment ,works or in general as to the subject matter of the contract in regard to which the associate claims having completed its obligations before or during such termination.

e) It shall be open to TPNODL to seek invocation of the performance bank guarantee or any other guarantee or other security deposit by whatever name called submitted by the associate, which shall not be objected to or protested against by the associate.

In case of termination of the contract the parties agree to be governed inter alia by the following:

a) In case TPNODL exercises its right of termination as stated above the associate shall not dispute or object to the same.

b) The Associate shall be entitled to receive and claim only such payments OR sums of money from TPNODL as may be found payable to it in regard to works executed by it under the terms of the contract and no other claim of any nature whatsoever shall be made by the Associate.

c) All such provisions which the parties have agreed to survive and prevail even after termination of the contract shall remain effective despite the termination.

In the event of such termination, TPNODL may finish the Work by whatever method it may deem expedient, including the hiring of services and /or purchase of material equipment from such third parties as TPNODL may deem fit or may itself provide any labor or materials and

perform any part of the Work. The associate undertakes to bear the incremental costs if any paid by TPNODL in such a case attributable to failure on the part of the associate. The Associate in such a case shall not be entitled to receive any further payments and any sums found payable to it may be adjusted by TPNODL against the amount recoverable from him on this ground. The same shall be without prejudice to other rights available to TPNODL under law against the associate.

Upon the termination of any of the contract due to occurrence of any circumstances provided in clauses stated above and constituting repeated breach or misconduct , TPNODL shall be entitled to bar the associates its agents , affiliates from undertaking any negotiation / tendering, bidding , participation activities concerning TPNODL for a period of two years from date of such termination. The same shall be without prejudice to other rights available to TPNODL.

22.2 Termination for Convenience of Associate

Associate at its convenience may request for termination of contract, clearly assigning the reason for such request. TPNODL has full right to accept, reject or partially accept such request. However, associate shall continue its supply as per contract till final approval is given to associates for such termination.

22.3 Termination for Convenience of TPNODL

TPNODL at its sole discretion may terminate the contract by giving 30 days prior notice in writing or through email to the Associate. TPNODL shall pay the Associate for all the supplies/ services rendered till the actual date of contract termination against submission of invoice by the Associate to that effect.

23.0 DISPUTE RESOLUTION & ARBITRATION

In case of any dispute or difference the parties shall endeavour to resolve the same through conciliatory and amicable measures within 15 Days failing which the matter may be referred by either party for resolution by the sole arbitrator to be appointed mutually by both the parties. The arbitral proceedings shall be conducted in accordance with Arbitration and Conciliation Act 1996 and the place of arbitration shall be Bhubaneswar. The language to be used at proceedings shall be English and the award of the arbitrator shall be final and binding on the parties. The parties shall bear their respective costs of arbitration. The associate shall continue to discharge its obligations towards due performance of the works as per the terms of the contract during the arbitration proceedings unless otherwise directed in writing by TPNODL or suspended by the arbitrator. Further, TPNODL shall continue making such payments as may be found due and payable to the associate for such works.

23.1 Governing Laws and Jurisdiction

The parties shall be subject to the jurisdiction of the courts of law in Bhubaneswar and any matter arising here from shall be subject to applicable law in force in India.

24.0 ATTRIBUTES OF GCC

24.1 Cancellation

The Company reserves the right to cancel, add, delete at its sole discretion, all or any terms of this GCC or any contract, order or terms agreed between the parties in pursuance without assigning any reasons and without any compensation to the Associates.

24.2 Severability

If any portion of this GCC is held to be void, invalid, or otherwise unenforceable, in whole or part, the remaining portions of this GCC shall remain in effect.

24.3 Order of Priority

In case of any discrepancies between the stipulations in General Conditions of the Contract (GCC) and Special Conditions of Contract (SCC), the GCC shall stand superseded by the SCC to the extent stipulated hereinabove while balance portion of respective clauses of GCC shall continue to be applicable.

25.0 ERRORS AND OMISSIONS

The Associate shall be responsible for all discrepancies, errors and omissions in the drawings, documents or other information submitted by him, irrespective of whether these have been approved, reviewed or otherwise accepted by the TPNODL or not. However any error in design/drawing arising out of any incorrect data/written information from TPNODL will not be considered as error and omissions on part of the Associate.

26.0 TRANSFER OF TITLES

The title of ownership and property to all equipment, materials, drawings & documents shall pass to the TPNODL on acceptance of material by store/site after Inspection.

However, such passing of title of ownership and property to the TPNODL shall not in any way absolve, dilute or diminish the responsibility and obligations of the Associate under this Contract including loss or damages and all risks, which shall vest with the Associate.

27.0 INSURANCE

The Contractor shall take out the Insurance Policies which shall cover all risks including the following, as applicable:-

a) The value of the policy shall cover the total value of all the items till they are handed over to TPNODL.

b) TPNODL shall be the principal holder of the policy. The Associate shall be the loss payee under the policy. Associate / Sub-contractor of the Associate shall not be holders or beneficiaries in the policy nor shall they be named in the policy. TPNODL reserves the exclusive right to assign the policy.

c) While the payment of premium may be phased in agreement with the insurance company, at no time shall goods and services required to be provided by the associate shall remain uninsured in accordance with (a) above.

d) A copy of the Insurance policy shall be made available to TPNODL prior to first dispatch lot of any Equipment and policy shall be kept alive and valid at all times up to the stage of final acceptance.

e) TPNODL reserves the right to take out whatever policy that is deemed necessary by him if the associate fails to keep the said policy alive and valid at all times and/or causes lapses in payment of premium thereby jeopardizing the said policy. The cost of such policy(s) shall be recovered / deducted from the amount payable to the associate.

f) The policy shall ensure that the TPNODL's decision regarding replacement of goods damaged, lost or rendered unusable shall be final.

In all cases, the associate shall lodge the claims with the underwriters and also settle the claims and shall also notify TPNODL of any filed claims. However, the associate shall proceed with the repairs and/or replacement of the equipment/components without waiting for the settlement of the claims. In case of seizure of materials by concerned authorities, the associate shall arrange prompt release against bond, security or cash as required. TPNODL, upon request by the associate, will extend all reasonable assistance to the associate in such a case.

All the insurance claims shall be processed and settled by the associate and the missing/damaged items shall be replaced/repaired by them without any extra cost to TPNODL and without affecting the completion time.

28.0 SUGGESTIONS & FEEDBACK

We welcome all our Business Associates to write to us about their experience with TPNODL; be it our Company, our services or our people. Each and every concern, issue, query and suggestion from you will help us to become a better company to work with and shall help us develop a strong bonding of trust and a long term relationship with you.

You may send your feedback to HOD Contracts by filling up our Business Associate Feedback Form enclosed herewith as *Annexure-I.*

29.0 CONTACT POINTS

In case Business Associate needs information with respect to payments or has any grievances, he may contact to HoD-Contracts and Finance.

30.0 LIST OF ANNEXURES

S. No.	Subject	Annexure
1.	Performa for Bid Security Bank Guarantee	A
2.	Performa for Performance Bank Guarantee (CP cum EP)	B
3.	Performa for No Demand Certificate by Associate	C
4.	Performa For Application For Issuance of Consolidated TDS Certificate	D
5.	Business Associate Feedback Form	E
6.	Acceptance Form For Participation In Reverse Auction Event	F
7.	Form for RTGS Payment	G
8.	Vendor Appraisal Form	H
9.	Manufacturer Authorization Form	I
10.	Tata Code of Conduct	I

ANNEXURE-A

Approved Copy of GCC (TPNODL)-Rev01

PROFORMA FOR BID SECURITY BANK GUARANTEE

TP Northern Odisha Distribution Limited
Balasore

WHEREAS, (Name of the Bidder) _____

(hereinafter called "the BIDDER") has submitted his bid dated_____ for the (Tender No. & Name of Contract) _____ (hereinafter called "the BID").

KNOW ALL men by these presents we (Name of the Bank) _____ of (Name of the Country) _____ having our registered office at_____(hereinafter called "the BANK) are bound unto TPNODL in the sum of _____ for which payment well and truly to be made to the TPNODL the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20_____.

The CONDITIONS of this obligation are**:**

i) If the Bidder withdraws his Bid during the period of bid validity specified in the Proforma of Bid or

ii) If the Bidder having been notified of the acceptance of his Bid by the TPNODL during the period of bid validity fails or refuses to furnish the Contract Performance Bank Guarantee, in accordance with the Instructions to Bidders.

We undertake to pay the TPNODL upto the above amount upon receipt of its first written demand, provided that in its demand the TPNODL will note that amount claimed by it is due to it owing to the occurrence of one or both conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force upto and including the date (No of days as mentioned in tender enquiry) days after the closing date of submission of bids as stated in the Invitation to Bid or as extended by you at any time prior to this date, notice of which extension to the Bank being hereby waived, and any demand in respect thereof should reach the Bank not later than the above date.

DATE …… SIGNATURE OF THE BANK ……..
WITNESS …… SEAL ……..
(Signature, Name & Address) (At least 2 witnesses)

ANNEXURE- B

PROFORMA FOR PERFORMANCE BANK GUARANTEE (CP cum EP)

(On Rs.100/- Stamp Paper) Note:

a) Format shall be followed in toto
b) Claim period of six months must be kept up

c) The guarantee to be accompanied by the covering letter from the bank confirming the signature to the guarantee

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TP Northern Odisha Distribution Ltd.

Balasore

CP cum EP BG No…….

Order/Contract No……dated……

1. You have entered into a Contract No _____ with M/s._____ (hereinafter referred to as "the Vendor") for the supply cum erection / civil work of _____ (hereinafter referred to as" the said Equipment") for the price and on the terms and conditions contained in the said contract.
2. In accordance with the terms of the said contract, "the Vendor" agreed to furnish you with an irrevocable, unconditional and acceptable bank guarantee for 10% of the value of contract and to be valid till the end of Guarantee period plus one month towards "Contract cum Equipment performance". For this purpose you have agreed to accept the guarantee.
3. In consideration thereof, we, _____ hereby irrevocably and unconditionally guarantee to pay to you on demand but in any case before the end of five working days from the date of the claim and without demur and without reference to "the Vendor" such amount or amounts not exceeding the sum of Rs._____ (Rupees _____ only) being _____% (_____ percent) of the total value of the contract on receipt of your intimating that "the Vendor" has not fulfilled his contractual obligations. You shall be the sole judge for such non-fulfillment and "the Vendor" shall have no right to question such judgment.
4. You shall have the right to file / make your claim on us under the guarantee for a **further period of one month** from the date of expiry.
5. This guarantee shall not be revoked without express consent and shall not be affected by your granting time or any other indulgence to "the Vendor", which shall include but not be limited to, postponement from time to time of the exercise the same in you or any right which you may have against "the Vendor" and to exercise the same in any covenant contained or implied in the said contract or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by

your exercising any of your rights with reference to matters aforesaid or any of them or by reasons of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving our bank from its obligation under this guarantee.

6. We also agree that you shall be entitled at your option to enforce this guarantee against our bank as a principal debtor, in the first instance, notwithstanding any other security or guarantee that you may have in relation to “the Vendor’s” liabilities in respect of the premises

7. This guarantee shall not be affected by any change in the constitution of our Bank or “the Vendor” or for any other reason whatsoever.

8. Any claim / extension under the guarantee can be lodge-able at outstation banks or at Balasore branch and claim will also be payable at Balasore Branch (to be confirmed by Balasore Branch by a letter to that effect in case BG is from the branch outside Balasore).

9. Notwithstanding anything herein contained, our liability under this guarantee is limited to Rs._____ (Rupees_____ only and the guarantee will remain in force upto and including _____(Date) and shall be extended from time to time for such period or period as may be desired by “the Vendor”.

10. Unless a demand or claim under this guarantee is received by us in writing within six months from_____ (expiry date) i.e. on or before _____ (claim period end date), we shall be discharged from all liabilities under this guarantee thereafter.

Dated at_____ this_____ day of _____ 20__

Bank’s rubber stamp

1. Banks full address

Designation of Signatory

2. Bank official number

ANNEXURE-C

PROFORMA FOR "NO DEMAND CERTIFICATE" BY ASSOCIATE

(On Company's Letter head or with Company Seal)
(To be submitted by the Associate to TPNODL Accounts Department at the time of receipt of full and final payment)

(Certificate No. CCP/002)

Name of the Project Order/

Contract No.

Dated

Name of the Associate Scheme

No. / Job No.

We, M/s._____ (Associate) do hereby acknowledge and confirm that we have received the full and final payment due and payable to us from TPNODL, in respect of our aforesaid Order No _____ dated_____ including amendments, if any, issued by TPNODL to our entire satisfaction and we further confirm that we have no claim whatsoever pending with TPNODL under the said contract / W.O.

Notwithstanding any protest recorded by us in any correspondence, documents, measurement books and / or final bills etc., we waive all our rights to lodge any claim or protest in future under this contract.

We are issuing this "NO DEMAND CERTIFICATE" in favour of TPNODL, with full knowledge and with our free consent without any undue influence, misrepresentation, coercion etc.

Place **Name**

(Company Seal)

ANNEXURE-D

PROFORMA FOR APPLICATION FOR ISSUANCE OF CONSOLIDATED TDS CERTIFICATE

To be printed on the letterhead

To,

TPNODL,

Balasore

Sub: Application for issuance of Consolidated TDS Certificate for the FY _____

Dear Sir,

I / we hereby request / authorize you to issue me / us a consolidate TDS Certificate for the financial year _____ against tax deducted at source by you from my / our payments / bills during the said year from time to time under Chapter XVII – B of the Income Tax Act, 1961.
For and on behalf of

Signature

Name

Address

Contact No. (Land Line)

(Mobile)

PAN #

Assessing authority

ATTACH THE COPY OF PAN CARD

ANNEXURE-E

BUSINESS ASSOCIATE FEEDBACK FORM

With an objective to improve our internal processes and systems, and serve you better, we solicit your valuable feedback & suggestions. It is estimated that it will take about 10 minutes to complete this survey. We assure you that your feedback shall be kept confidential. Please send the duly filled feedback form in the "TPNODL addressed - attached envelop"

You are associated with us as

☐ OEMs ☐ Service Contractor ☐ Material Suppliers ☐ Material & Manpower Supplier

You are associated with us for

☐ Less than 1 year ☐ More than 1 year but less than 3 years ☐ More than 3 years

Your office is located at

☐ Balsore ☐ Within 200 kms from Balsore ☐ More than 200 kms from Balsore

Your nearly turnover with TPNODL

☐ Less than 25 Lacs ☐ 25 Lacs to 1 Crore ☐ More than 1 Cr.

Additional Information

Your Name	
Your Designation	
Your Organization	
Contact Nos.	
Email	

We once again thank you for your participation in this survey. Please spare 10 minutes to give your feedback on following pages (Section A to E)

SECTION – A

(Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement).

S. No.	Parameters	1 Do Not Agree	2 Slightly in Agreement	3 In Fair Agreement	4 Mostly in Agreement	5 Fully Agree	Remarks/ Suggestion
1	You receive all relevant queries / tenders from us in timely manner.						
2	We provide you enough lead time to respond to our queries / tenders.						
3	We provide you adequate support (drawings, documents, clarifications, briefing etc.) to enable you meet our requirements.						
4	All following elements of our contract / purchase order are rational :						
4.1	Scope of Work						
4.2	Delivery / Execution Schedule						
4.3	Payment Terms						
4.4	Liquidated Damages						
4.5	Performance Guarantee						
5	Our purchase orders / contracts are simple, specific & easy to understand						
6	TPNODL demonstrate willingness to be flexible in administration of Contract / Purchase Order						
7	We provide timely responses / clarifications to your queries						
8	TPNODL representative you interact / coordinate with is adequately empowered to support you in meeting contractual obligations						
9	TPNODL provide you all necessary infrastructure support for timely and quality completion of work (including AMC)						
10	TPNODL Engineer-in-Charge timely certifies the jobs executed/ material supplied						
11	TPNODL Engineer-in-Charge efficiently supervises the job execution for timely completion of job						
12	BIRD (Bill Inward Receipt Desk) initiative has improved payment disbursement process						

S. No.	Parameters	1 Do Not Agree	2 Slightly in Agreement	3 In Fair Agreement	4 Mostly in Agreement	5 Fully Agree	Remarks/ Suggestion
13	Our approach for Inspection and Quality Assurance effective to expedite project completion?						
14	TPNODL never defaults on contractual terms						
15	In TPNODL Contracts closure is done within set time limit						
16	Our material receiving procedures are well defined and efficiently deployed to reduce mutual inconvenience						
17	Bank Guarantees are released in time bound manner						
18	Our processes related to payment / account settlement are effective.						
19	You get payments on time						
20	TPNODL Employees follow Ethical behaviour						

SECTION – B

SECTION – B (Please rate the following parameters on a scale of 1 to 5, where 1 - Minimum; 5 - Maximum)

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
1	How do you rate courtesy/ empathy/ attitude level and warmth of TPNODL employees you interact with from following team?						
1.1	Project Engineering						
1.2	District / Zones						
1.3	Projects/HOG (TS &P)						
1.4	Inspection & Quality Assurance						
1.5	Stores						
1.6	Metering & Billing						
1.7	Accounts / Finance						
1.8	Administration						
1.9	IT & Automation						
2	How would you rate TPNODL in comparison to your other clients in terms of **fairness of treatment and transparency** with its Business Associates?						
3	How would you rate TPNODL in comparison to your other clients in terms of **processes and systems to manage partnership** with its Business Associates						
4	How would you rate TPNODL in comparison to your other clients in terms of **building long term & mutually relations**hip with its Business Associates						

SECTION – C

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

S. No.	Parameters	Certainly No	Probably No	Certainly Yes	Probably Yes	Remarks/ Suggestion
1	Based on your experience with TPNODL, would you like to continue your relationship with TPNODL?					
2	If someone asks you about TPNODL, would you talk “positively” about					

	TPNODL?					
3	Would you refer TPNODL name to others in your community, fraternity and society as a professional & dynamic organization?					

SECTION - D

If we ask you to rate us on a scale of 1 to 10, how will you rate TPNODL, that truly represents your overall satisfaction with us (please tick appropriate box) -

1	2	3	4	5	6	7	8	9	10

SECTION – E

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

Please spare your thoughts for TPNODL's improvement in particular areas of weaknesses, particularly relating to some great practices, attitudes that you have seen elsewhere in Indian and International Organizations, which you recommend TPNODL to adopt. Please give your valuable salient recommendations.

Please spare your thoughts for TPNODL's improvement in particular areas of major concerns for you. We also welcome your suggestions to adopt any best practices, altitudes that you

Recommendation	*Please tick (√) your top 5 expectations out of the following 10 points listed below -*	
(Please list down improvement you expect from TPNODL)	*Timely payment*	
1	*Flexibility in Contracts/PO*	
	Clarity in PO,s & Contracts	
2	*Timely response to quarries*	
	Timely certification of works executed	
3	*Clarity in Specs, drawings, other docs etc.*	
	Adequate information provided on website for tender notification, parties qualified etc.	
4	*Timely receipt of material at site for execution*	
	Performance Guarantee/EMD released in time	

5	*Inspection & quality assurance support for timely job completion*	

We thank you for your time and courtesy!!

ANNEXURE-F

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder prior to participation in the auction event)

In a bid to make our entire procurement process more fair and transparent, TPNODL intends to use the reverse auctions through ARIBA tool as an integral part of the entire tendering process. All the bidders who are found as technically qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid event:

1. TPNODL shall provide the user id and password to the authorized representative of the bidder. (Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form).
2. TPNODL will make every effort to make the bid process transparent. However, the award decision by TPNODL would be final and binding on the supplier.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of TPNODL, bid process, bid technology, bid documentation and bid details.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through Internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs, power failure or any other reason shall not be the responsibility of TPNODL.
6. In case of intranet medium, TPNODL shall provide the infrastructure to bidders. Further, TPNODL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case an auction event is restarted, the best bid as already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out rightly rejected by TPNODL.
8. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at TPNODL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by TPNODL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all inclusive prices offered during conclusion of the auction event for arriving at Contract amount.

Signature & Seal of the Bidder

ANNEXURE-G

To,

DGM (Finance)
TPNODL
Balasore

Sub: **e-Payments through National Electronic Fund Transfer (NEFT) OR Real Time Gross Settlement System (RTGS)**

Dear Sir,

We request and authorize you to affect e-payment through NEFT/RTGS to our Bank Account as per the details given below:-

Vendor Code :

Title of Account in the Bank :

Account Type :

(Please mention here whether account is Savings/Current/Cash Credit)

Bank Account Number : | | | | | | | | | | | | | | | | | |

Name & Address of Bank :

Bank Contact Person's Names :

Bank Tele Numbers with STD Code :

Bank Branch MICR Code : | | | | | | | | | | | | |

(Please enclose a Xerox a copy of a cheque. This cheque should not be a payable at par cheque)

Bank Branch IFSC Code : | | | | | | | | | | | | | |

(You can obtain this from branch where you have your account)

Email Address of accounts person: : (to send payment information)

Name of the Authorized Signatory: :

Contact Person's Name:

Official Correspondence Address:

We confirm that we will bear the charges, if any, levied by our bank for the credit of NEFT/RTGS amounts in our account. Any change in above furnished information shall be informed to TPNODL well in time at our own. Further, we kept TPNODL indemnified for any loss incurred due to wrong furnishing of above information.

Thanking you,

For _____

(Authorised Signatory)

(Signature with Rubber Stamp)

Certification from Bank:

We confirm that we are enabled for receiving NEFT/RTGS credits and we further confirm that the account number (specify Bank a/c no.) of (Please mention here name of the account holder), the signature of the authorised signatory and the MICR and IFSC Code of our branch mentioned above are correct.

This also is certified that the above information is correct as per Bank record

(Manager's/ Officers Signature under Bank Stamp)

ANNEXURE-H

VENDOR APPRAISAL FORM

TO BE SUBMITTED BY VENDOR (To be filled as applicable)			
Part A			
1.0	DETAILS OF THE FIRM		
	1.1	NAME (IN CAPITAL LETTERS)	
	1.2	TYPE OF CONCERN (PROPRIETORY) PARTNERSHIP PVT.LTD., PUBLIC LTD. ETC.	
	1.3	YEAR OF ESTABLISHMENT	
	1.4	LOCATION OF OFFICE POSTAL ADRESS	
	1.5	CONTACT DETAIL OF BA's REPRESENTATIVE NAME E-MAIL ID CELL NO.	
	1.6	LOCATION OF MANUFACTURING UNITS	:
		i) UNITS 1	:
		ii) OTHER UNITS	:
2.0	PRODUCTS / SERVICES BEING OFFERED		:
3.0	TURNOVER DURING THE LAST 3 YEARS (TO BE VERIFIED WITH THE LATEST PROFIT & LOSS STATEMENT).		:
4.0	AVALABILITY OF STATUTORY DOCUMENTS I.E. COPY OF PAN CARD		:
5.0	AVALABILITY OF STATUTORY DOCUMENTS I.E. COPY OF GST REGISTRATION		÷
6.0	APPLICABILITY UNDER MSME CERTIFICATION		÷
7.0	BA BELONGS TO AA COMMUNITY (SC/ST)		÷
8.0	DOCUMENTS VERIFYING ADDRESS PROOF (SUPPORTED BY ANY GOVT. ISSUED DOCUMENT)		÷

9.0	TECHNICAL		
	9.1	NO.OF DESIGN ENGINEERS (INDICATE NO.OF YEARS EXPERIENCE IN RELATED FIELDS)	:
	9.2	NO.OF DRAUGHTSMEN	:
	9.3	COLLABORATION DETAILS (IF ANY)	:
		9.3.1 DATE OF COLLABORATION	:
		9.3.2 NAME OF COLLABORATOR	:
		9.3.3 RBI APPROVAL DETAILS	:
		9.3.4 EXPERIENCE LIST OF COLLABORATOR	:
		9.3.5 DURATION OF AGREEMENT	:
	9.4	AVAILABILITY OF STANDAR0DS / DESIGN PROCEDURES / COLLA-BORATOR'S / DOCUMENTS (CHECK WHETHER THESE ARE LATEST/CURRENT	:
	9.5	TECHNICAL SUPPORT, BACK-UP GUARANTEE, SUPERVISION, QUALITY CONTROL BY COLLABORATOR (WHEREVER ESSENTIAL). (THIS CLAUSE IS RELEVANT WHEN VENDOR'S EXPERIENCE IS INADEQUATE)	:
	9.6	QUALITY OF DRAWINGS	:
10.0	MANUFACTURE		
	10.1	SHOP SPACE, LAYOUT LIGHTING, VENTILATION, ETC.	:
	10.2	POWER (KVA)	:
		MAINS INSTALLED	:
		UTILISED	:
		STANDBY POWER SOURCE	:
	10.3	MANUFACTURING FACILITIES (ATTACH LIST OF EQUIPMENTS AS APPLICABLE)	:
		10.3.1 MATERIAL HANDLING	:
		10.3.2 MACHINING	:
		10.3.3 FABRICATION	:

		10.3.4 HEAT TREATMENT	:
		10.3.5 BALANCING FACILITY	:
		10.3.6 SURFACE TREATMENT PRIOR TO PAINTING/ COATING, POLISHING, PICKLING, PASSIVATION, PAINTING, ETC.	:
	10.4	SUPERVISORY STAFF	:
	10.5	ADEQUACY OF SKILLED LABOURS (MACHINISTS, WELDERS, ETC.)	:
	10.6	NO. OF SHIFTS	:
	10.7	TYPE OF MATERIAL HANDLED (SUCH AS CS, SS, ETC.)	
	10.8	WORKMANSHIP	:
	10.9	MATERIAL IN STOCK AND VALUE	:
	10.10	TRANSPORT FACILITIES	:
	10.11	CARE IN HANDLING	:
11.0	INSPECTION / QC / QA / TESTING		
	11.1	NUMBER OF PERSONNEL (INDICATE NO.OF YEARS OF EXPERIENCE)	:
	11.2	INDEPENDENCE FROM PRODUCTION	:
	11.3	AVAILABILITY OF PROCEDURAL WRITE UP/QUALITY PLAN	:
	11.4	INCOMING MATERIAL CONTROL AND DOCUMENTATION	:
	11.5	RELIABILITY/REPUTATION OF SUPPLY SOURCES	:
	11.6	STAGE INSPECTION AND DOCUMENTATION	:
	11.7	SUB-ASSEMBLY & DOCUMENTATION	:
	11.8	FINAL INSPECTION AND DOCUMENTATION	:
	11.9	PREPARATION OF FINAL DOCUMENTATION PACKAGE	:
	11.10	TYPE TEST FACILITIES	:
	11.11	ACCEPTANCE TEST FACILITIES	:

	11.12	CALIBRATION OF INSTRUMENTS AND GAUGES (WITH TRACEABILITY TO NATIONAL STANDARDS) (ATTACH LIST)	:
	11.13	STATUTORY APPROVALS LIKE BIS, IBR, ETC.(AS APPLICABLE)	:
	11.14	SUB-VENDOR APPROVAL SYSTEM AND QUALITY CONTROL	:
	11.15	DETAILS OF TESTS CARRIED OUT AT INDEPENDENT RECOGNISED LABORATORIES	:
		i) FURNISH LIST OF TESTS CARRIED OUT AND THE NAME OF THE LABORATORY WHERE THE TESTS WERE CONDUCTED	:
		ii) CHECK AVAILABILITY OF CERTIFICATES AND REVIEW THESE WHEREVER POSSIBLE	:
12.0	EXPERIENCE (INCLUDING CONSTRUCTION / ERECTION / COMMISSIONING) TO BE FURNISHED IN THE FORMAT INDICATED IN APPENDIX)		:
13.0	SALES, SERVICE AND SITE ORGANISATIONAL DETAILS		:
14.0	CERTIFICATE FROM CUSTOMERS (ATTACH COPIES OF DOCUMENTS)		:
15.0	POWER SITUATION		:
16.0	LABOUR SITUATION		:
17.0	APPLICABILITY OF SC/ST RELAXATION (Y/N) IF YES, SUPPORTING DOCUMENTS TO BE ATTACHED		
Part C Supporting Documents			

18.0	**DOCUMENTS TO BE ENCLOSED:** 1. Factory License 2. ISO Certificate 3. Registration of Central Excise 4. Income Tax Clearance. 5. PF Registration 6. ESI Registration 7. Insurance for Workman Compensation Act No. 8. Electrical Contract LIC No. 9. PAN No. 10. GST Registration 11. MSME Certification 12. WC Tax Registration 13. Organogram of Co. having organogram of Design, safety, quality, production and other teams. 14. Details of subscription of BIS, IEC, IEE, ASTM or other. 15. Details of the team in Design, Quality, Safety, Production. 16. List of manufacturing equipment as per Part C. 17. List of calibrated equipment as per Part C. 18. List of clients and order executed in past two years. 19. Complaint escalation matrix. 20. Performance Certificates of same product from Minimum two utilities. 21. e-Payment Form as per enclosed Annexure-G	

*** Classification of BA s under SC/ST shall be governed under following guidelines:**

- **Proprietorship/ Single Ownership Firm:** Proprietor of the firm should be from SC/ST community. Governing document shall be Proprietorship Deed.
- **Partnership Firm:** Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed.
- **Private Limited Company:** Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).
- The relaxation available for BAs under SC / STs shall be as per GCC for Tender Fees, EMD, PBG and Turnover criteria.

NOTE: Certification from SC/ST Commission shall be required for deciding upon SC/ST status of a person.

Annexure-G (e-Payment detail form) must be filled by Associate along with this form.

ANNEXURE-I

MANUFACTURER AUTHORIZATION FORM

(To be submitted on OEM's Letter Head)

Date: …….

Tender Enquiry No.: ……..

To,

Chief (Contracts & MM)

TPNODL,
Balasore

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of …… having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us

……and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the Special Conditions of Contract or as mentioned elsewhere in the Tender Document, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the materials supplied against the contract. The warranty period and inclusion / exclusion of parts in the warranty shall remain same as defined in the contract issued to their channel partner against this tender enquiry.

Yours Sincerely,

For ……..

Authorized Signatory

Annexure-J

TATA CODE OF CONDUCT (TCoC)

Introducing Tata Code of Conduct (TCoC) in GCC, the following clause is proposed for inclusion as per suggestions from Chief Ethics Counsellor -

"TCoC is the overarching policy framework that applies to all TATA Group companies including TPNODL. TCoC provides for stakeholder-wise approach in each of the seven chapters.

The chapter "Our Value Chain Partners" states the policy as follows:

1. We shall select our suppliers and service providers fairly and transparently.
2. We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
3. Our suppliers and service providers shall represent our company only with duly authorized written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.
4. We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company's gifts and hospitality policy.
5. We respect our obligations on the use of third party intellectual property and data.

In case any Ethical Concern is faced during the course of your business dealings BA can write to Chief- Contracts & MM and CEO.

TPNODL is committed to follow Core Values and Core Principles mentioned in TCoC, cited below, in carrying out various activities as well as in discharge of bi-lateral and multi-lateral obligations involving other entities/organizations:

Core Values:

All six core values are already mentioned in GCC.

Core Principles:

1. **Zero tolerance to bribery or corruption** in any form.
2. Committed to **good corporate citizenship**
3. Contribute to the **economic development of the communities** of the countries & regions we operate in.
4. No compromise on **Safety**
5. Our conduct shall be **fair & transparent**
6. Respect the **human rights & dignity** of our stakeholders
7. **No unfair discrimination** of any kind
8. Statements made to stakeholders shall be **truthful** & made in **good faith**
9. Not engage in any restrictive or **unfair trade practice**
10. Provide avenues for our stakeholders to **raise concerns in good faith**
11. Environment **free from fear** of retribution to deal with concerns that are raised
12. Expect the leaders to be **role model**

13. **Comply with the laws** of the countries in which we operate

Gift Policy:

Principles for acceptance of gifts/benefits –

A gift or benefit may be accepted only if it complies with all of the following principles:

- ✓ it does not influence,
- ✓ does not have the potential to influence, an employee in such a way as to compromise or appear to compromise integrity and impartiality
- ✓ does not create a conflict of interest or perception of conflict of interest;

Principles for non-acceptance of gifts/benefits -

The gift or benefit may not be accepted or given if any of the following principles apply:

- ✓ causes the recipient or donor **to act in partial manner** in the course of duty
- ✓ apprehension of the recipient becoming **obligated to the donor**
- ✓ it is **not offered openly**
- ✓ if is an **offer of money** or something readily convertible to money (e.g. Shares)

Violation –

1. Not abiding with this policy would constitute violation of “Our Employees” Stakeholder group Clause “Gifts and Hospitality” of the Tata Code of Conduct (TCoC) 2015. Prompt action will be taken against violations.
2. Any deviation from this policy must be supported by appropriate rationale and must be duly approved by CEO who is also the Principal Ethics Officer. In any case, in dealing with such deviations, the spirit of the TCoC should in no case be compromised.

2. If it is determined that an employee / associate has violated this policy, appropriate action including termination of the employee’s / associate’s employment or association with TPNODL may be decided upon.